MASTER OF SCIENCE

Qualitative service evaluation of interventions aimed at improving the maternal and infant nutrition of disadvantaged populations

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Award date:
2012

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2013

University of Dundee

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(HONS)

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MSc thesis

University of Dundee

August 2012

Division of Clinical & Population Sciences & Education (CPSE)

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Table of Contents

List of Figures and Tables

List of Appendices

Acknowledgements

I'd like to take this opportunity to acknowledge everyone who has provided their kind help, patience and support throughout this thesis. Firstly, many thanks to my supervisors, Professor Annie Anderson and Dr Andrew Symon, whose expertise in research and writing were valuable to the piecing together of this thesis. Also, I'd like to extend my thanks to everyone in the CPHNR office for keeping my spirits up with hugs, cups of tea and cake. Special thanks to Karen Barton, Dr Maureen Macleod, Dr Stephen Caswell, Dr Dionne Mackison and Dr Angela Craigie who were undeniably supportive and were always willing to lend a helping hand. Finally, thank you to my wonderful fiance, Kieran Andrews, whom I am eternally grateful to for his continual understanding and countless discussions about all matters nutrition and deprivation.

Declaration

By signing this declaration I, Emma Jade Cessford, confirm that I am the author of the thesis; that, unless otherwise stated, all references cited have been consulted by the candidate, Emma Jade Cessford; that the work of which the thesis is a record has been done by the candidate, Emma Jade Cessford, and that it has not been previously accepted for a higher degree: provided that if the thesis is based upon joint research, the nature and extent of the candidate's individual contribution shall be defined.

Signed:…….. Date 21st August

I, Annie S. Anderson, confirm that the conditions of the relevant Ordinance and Regulations have been fulfilled by the candidate, Emma Jade Cessford.

Signed:……. Date 21st August

Abstract

Inappropriate maternal and infant feeding practices, food choices and dietary behaviours are thought to have a major impact on morbidity in infancy, childhood and later life. Many NHS interventions have been developed to help address these issues including food skills groups aimed at women of childbearing age and antenatal and postpartum services for mothers living in deprived areas.

To evaluate service users', from deprived areas, perceptions of a maternal weight management programme and practical food skills interventions, a qualitative evaluation was undertaken to inform the development and delivery of future NHS services.

A total of 48 semi-structured interviews were undertaken with service users who participated in antenatal obesity counselling or food skills or weaning skills groups. The main areas of investigation were personal experience of interventions (acceptability, barriers and opportunities, receptiveness) and perceived impact on dietary knowledge and behaviours. Recorded verbatim data were transcribed and coded by applying 'Framework Analysis'.

A number of key themes emerged from discussions with respondents, namely, receptiveness for such nutrition interventions, the importance of consistent information from approachable staff and issues regarding the duration of interventions. It was apparent that a problem existed between the translation of knowledge and skills gained in the intervention into a real-life, every day setting. With regards to the maternal obesity intervention, the findings indicate some of the teething problems of a service under development. Participants welcomed the

opportunity for supportive and continual relationships but expectations were not fully met. The findings do however suggest there is interest in this service from women not only during pregnancy but continued into the postpartum period.

Overall, the need to develop and sustain supportive services and skills development for weight management and healthy food choices was welcomed by the target group.

Further development of these services, along with wider public health efforts, offer considerable potential to impact on the long term health of women and children from deprived areas.

Chapter 1: Background

1.1: Infant feeding

1.1.1: Significance to health

Infant-feeding practices have the potential to impact on lifelong health and wellbeing (WHO, 2003, SACN, 2011). The World Health Organisation (WHO, 2003 pp. 5) emphasises that: *"…poor feeding practices are a major threat to social and economic development* [thus] *they are among the most serious obstacles to attaining and maintaining health…"*.

The beneficial effects of breastfeeding for both mother and infant are well documented (WHO, 2003, SACN, 2010) and considerable efforts have been made to improve breastfeeding rates. In Tayside, Scottish Government funding (CEL 36) in this area aims to promote better infant-feeding practices, including breastfeeding rates and appropriate complementary feeding (Scottish Government, 2011). The current study is focused on complementary feeding which is associated with health in infancy, childhood and later life (NICE, 2008b, SACN, 2010, Scottish Government, 2010, SACN, 2011).

Breast milk is the best source of sole nutrition for young infants until six months at which age weaning (introducing complementary foods and drinks) is necessary to meet an infant's growth and developmental needs. By six months, milk alone is insufficient to meet greater energy and nutrient demands and babies are generally receptive to new foods. Establishing good eating habits through a diverse diet is pertinent to the weaning process as later food preferences are thought to be influenced during this period (Sullivan and Birch, 1994, Foote et al., 2003). The rationales for not introducing complementary foods and drinks before six months are outlined in Table 1.1, along with the potential effects related to late weaning.

Table 1.1: Rationales for avoiding untimely weaning initiation

Potential effects of early weaning	Potential effects of late weaning
Allergies (e.g. asthma, eczema) Respiratory illness (e.g. wheeze) Type 1 diabetes mellitus (T1DM) Inappropriate body composition (e.g. obesity)	Micronutrient deficiencies Growth faltering
(Agostoni et al., 2008)	(WHO, 2003)

1.1.2: Current recommendations

In 1994, the Department of Health (DH) recommended, in the Committee on the Medical Aspects of Food Policy (COMA) report: *'Weaning and The Weaning Diet'* (DoH, 1994), that complementary foods should be introduced between four and six months of age. However, in 2001 Lanigan and colleagues published a systematic review concluding that there was insufficient evidence to either defend or dispute this four to six month recommendation. Where thirteen studies supported this recommendation, an equal number supported delayed introduction until six months. In recent years, however, UK government policy concerning infant feeding practice has been influenced by revised WHO guidance. Optimal nutrition from the "*timely*", "*adequate*" and "*safe*" introduction of complementary foods (WHO, 2003 pp: 8) is advocated, with exclusive breastfeeding for six months. This recommendation has been accepted by the UK Scientific Advisory Committee on Nutrition (SACN).

Fewtrell et al (2011) recently questioned current recommendations on the basis of the nutritional adequacy of exclusive breastfeeding until six months (namely a risk of iron deficiency anaemia and risk of coeliac disease later in life from delaying the

introduction of complementary foods). Delaying the introduction of potentially allergenic foods until six months has also been challenged in light of evidence from other countries where foods are introduced before six months but which have comparatively low incidences of allergy (e.g. peanut). However, Williams and Prentice (2011) responded by restating formally examined evidence by SACN's Subgroup on Maternal and Child Nutrition in 2001: *"…there is sufficient scientific evidence that exclusive breastfeeding for 6 months is nutritionally adequate"*. In recognition of UK infant feeding practices the Subgroup suggested that guidance be considerate of individual choices: *"…early introduction of complementary foods is normal practice in the UK and that mothers do this for many valid personal, social and economic reasons…there should be some flexibility in the advice, but…any complementary feeding should not be introduced before the end of 4 months…"* (SACN, 2001).

Current advice in relation to suitable complementary foods is derived from the 1994 COMA report (DoH, 1994). First suitably complementary foods include non-wheat cereals, fruit, and vegetables, which can be extended during the weaning process to introduce a more diverse diet (different tastes and textures). Home prepared foods are encouraged to accustom an infant to family tastes. Potentially allergenic foods (e.g. gluten containing foods, nuts, eggs and fish) and food safety concerns over liver, liver products and soft and unpasteurised cheese (listeria risk) suggest these foods should be avoided until six months of age, whilst honey (infant botulism risk) should be delayed until one year of age. Salt and sugar should not be added to foods and drinks. Milk (breast or formula) should be the main source of liquid for an infant until six months and soft drinks (including fruit juices and sweetened drinks) should be avoided throughout infancy (though if given, juice should be diluted and given alongside a

meal) (DoH, 1994). From six months of age, an infant should be encouraged to drink from a cup and by one year, bottle feeding should be discouraged, with the view to promoting good dental health.

1.1.3: Population profile

Recent Infant Feeding Surveys (IFSs) (2000, 2005) have demonstrated a trend towards later weaning, suggesting that the recommendations in place at the time of each survey are reflected in the results. For example, in 2000, 85% of mothers had commenced complementary feeding by four months of age, whereas in 2005 this figure fell to 51%. More mothers are waiting longer to wean: the average age of weaning was 15 weeks in 2000 and 19 weeks in 2005. Despite this improvement, however, findings from the 2005 IFS illustrate poor compliance with the current six month recommendation as only 2% had adhered to WHO guidance (Bolling et al., 2007).

Consistent evidence highlights that younger mothers and those of lower educational attainment are more likely to demonstrate poor infant-feeding practices, such as weaning early or offering inappropriate complementary foods (Savage et al., 1998, Alder et al., 2004, Wijndaele et al., 2009, SACN, 2010). It is notable that Tayside has the highest rate of adolescent pregnancy in Europe (ISD Scotland, 2009). A further demographic indicator is low socio-economic status (HEBS, 2001, Alder et al., 2004, Wright et al., 2004, Bolling et al., 2007, SACN, 2008, Wijndaele et al., 2009), where it is widely recognised that a cyclical relationship exists between social deprivation and inappropriate complementary feeding (NICE, 2008b).

The 2005 IFS demonstrated that, in comparison to those of highest socio-economic position, mothers who had never worked were found to be less likely to give their baby cooked fruit (15% vs. 54%) and more likely to give confectionary (33% vs. 14%), crisps

(21% vs. 10%) and eggs (15% vs. 5%) (Bolling et al., 2007). A third (32%) of babies had been introduced to liquids other than milk by four weeks of age, two-thirds (64%) by four months and most babies (84%) by six months. Those mothers of a low maternal age, from a lower socio-economic group and with low educational attainment were more likely to introduce liquids earlier than recommended.

A trend has been noted for improved cup or beaker use with 48% of mothers in the 2005 IFS using recommended age appropriate drinking vessels compared to 41% in the 2000 IFS. Yet disparities between socio-economic groups were observed as those who were unemployed were less likely to follow guidance on this matter compared with those from managerial or professional positions (32% vs. 53%).

1.1.4: Factors that influence infant-feeding behaviour

Early weaning is found to be primarily based on perceptions that milk feeds alone do not promote infant satiety (Anderson et al., 2001, Alder et al., 2004, McCormick et al., 2007). Perceived thirst, hunger and an unsettled baby are common reasons cited by carers of infants for introducing complementary foods and drinks (Alder et al., 2004, Wright et al., 2004, SACN, 2008). Moreover, Alder et al. (2004) found that the receipt of free samples of commercially prepared food was likely to be associated with earlier weaning initiation by mothers.

Mothers' "instinct", compounded by encouragement from friends and family, also appears to play a prominent role in infant-feeding behaviour (Daly et al., 1998, Alder et al., 2004, Bolling et al., 2007, McCormick et al., 2007). Information from women's friends and family (who are thought to base their decision on tradition as opposed to evidence) or the media is said to modify reliable advice from health professionals (NHS Health Scotland, 2006). Findings from the 2005 IFS show that of those who introduced complementary foods early (by 3 months), 77% did so basing their decision on

personal beliefs compared with 17% who did so following guidance sought from a healthcare professional (HCP). Guidance from professional sources is positively correlated with later weaning initiation. For example, weaning after 5 months was mostly influenced by HCP advice (59%), perceptions of an unsatisfied baby (40%) or written information (36%) (Bolling et al., 2007) (See Figure 1.1).

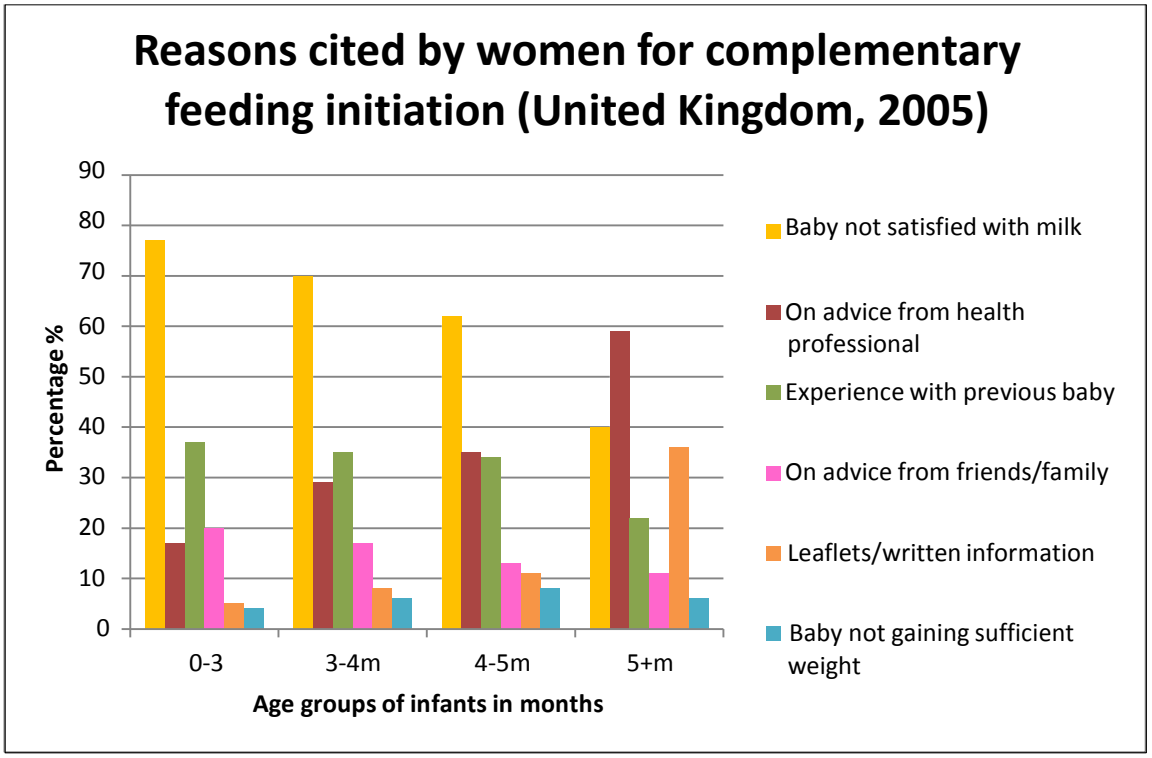

Figure 1.1: Data from UK Infant Feeding Survey (IFS) 2005 (Bolling et al., 2007)

Reasons for introducing liquids other than milk were motivated by perceived health concerns (e.g. constipation, indigestion, thirst) rather than lay advice (Bolling et al., 2007). SACN reviewed the findings of the 2005 IFS (SACN, 2008), and suggested that mothers did not fully appreciate that breast milk supplies adequate fluids as well as food, which may have contributed to the introduction of liquids before six months.

WHO suggest that poor knowledge of appropriate weaning practice contributes to inadequate nutrition in infants (WHO, 2003) and that specific infant-feeding education is associated with later introduction of solids (Savage et al., 1998). Lack of information

from health professionals has been found to be strongly predictive of early weaning practice (Wijndaele et al., 2009). Additionally, qualitative evidence by Anderson et al (2001), demonstrated that mothers are aware of recommendations yet did not appreciate longer-term health concerns related to early weaning.

SACN speculates that increased awareness of unsuitable complementary foods influences a change in infant-feeding practice. For example, more mothers in the 2005 survey, compared with the 2000 survey, adhered to recommendations in order to avoid giving potentially detrimental foods (SACN, 2008).

1.1.5: Intervention work

Promoting timely and safe weaning practice is considered a key area for public health policy to address infant welfare, particularly infants born into deprived households (Scottish Government, 2011, NHST, 2012). Nutrition interventions specifically targeted at vulnerable groups (e.g. socially deprived, young mothers) are considered to be effective in encouraging appropriate infant-feeding practice (NICE, 2008b). There is, however, a dearth of evidence assessing the effectiveness of interventions which aim to promote appropriate infant-feeding practice (weaning), particularly in disadvantaged communities within the UK (McCormick et al., 2007).

In 2007, a rapid review was published by NICE: "*The effectiveness of public health interventions to improve the nutrition of young children aged 6-24 months"* (McCormick et al., 2007). Included in this rapid review were two systematic reviews (Elkan et al (2000) and Tedstone et al (1998)), evaluating the effectiveness of interventions to promote appropriate infant-feeding practice. The format of the interventions included dietary education in the form of personalised care (home visits,

counselling), group-based work (including prenatal lectures, reading materials and discussion) and literature provision. Elkan et al (2000) assessed the effectiveness of three randomised controlled trials (RCTs) and one non-RCT, concluding that there was insufficient evidence to determine the effectiveness of home visits on outcome measures of improved infant diet. Tedstone et al (1998) concluded from five RCTs and one non-RCT that there was not enough evidence to recommend an effective intervention to promote appropriate infant-feeding practice. However, three of the studies (including home visits, counselling and written information) showed positive outcomes in both terms of timing and type of complementary food (although one intervention included nutritional aims not applicable to the UK). Further studies in Tedstone et al's (1998) systematic review had non-significant results or insufficient power to conclude the efficacy of home visits or health education on infant-feeding practice.

One corroborative non-randomised intervention study in the NICE review (McCormick et al., 2007) demonstrated a significant increase in knowledge from participants in a group-based intervention (which offered education centred on aspects of the COMA report (DoH, 1994)). Those in the intervention arm reported significantly greater use of home prepared foods and less use of commercially prepared foods ($p=0.0013$) than those in the control group. Conclusions drawn from this study suggest that group education is more conducive to facilitating appropriate infant-feeding behaviour than home or clinic visits by a health visitor.

Educating participants through home visits by trained volunteers ('community mothers' who were from the same peer group) has been found to improve some infant feeding practices (Watt, 2006). Drawing on evidence from a RCT in deprived

communities in London, women were found to be receptive to a weaning intervention which included a peer support element. No significant effects were found on breastfeeding duration, the timing of introducing complementary foods or at 18 months, on consumption of cow's milk or sweetened drinks. Knowledge about discouraging bottle feeding was significantly associated with intervention mothers (p=0.04). Home visits from 'community mothers' were significantly more likely to result in increased fruit and vegetable consumption in infants at 12 months, such as introducing apple (p=0.03), pear (p=0.002), boiled potatoes (p=0.02) and carrots (p=0.03). However, there were no significant associations between reported behaviour and mothers' confidence in being able to follow recommendations. At 18 months follow-up the intervention group were significantly more likely to have fed chips to their child (p=0.03) (which the authors suggest could be due to confusion of defining potatoes as a vegetable).

In a follow-up study to Watt and colleagues' (2006) RCT, mothers from the intervention arm had comparatively better knowledge and confidence concerning recommended practice four years after the original study (Scheiwe et al., 2010). However, although children from the intervention arm were more likely to consume fruit juice, no difference in whole fruit and vegetable consumption was found.

The NICE review (McCormick et al., 2007) states that there is a dearth of evidence to conclude what the most appropriate interventions are to facilitate the adoption of recommendations. Further evidence is needed to conclude whether an intervention delivering education on appropriate infant-feeding is effective in changing current infant-feeding behaviours. It is suggested that research should determine the impact of such interventions on subsequent practice and what the best mode of delivery is (i.e. individual support vs. group-based education) (Watt et al., 2009).

Mothers' perceptions of interventions are an important component of evaluating acceptability of infant-feeding programmes which aim to improve complementary feeding practice towards current recommendations (NICE, 2007, NHST, 2012).

1.2: Family food skills

1.2.1: Significance to health

Following the publication of the Acheson Report: "*Independent Inquiry into Inequalities in Health"* (Acheson, 1998), a commitment to tackling health inequalities amongst deprived neighbourhoods has been addressed in numerous policies (WHO, 2010). Health problems, including reduced quality of life from chronic physical and mental illness, are associated with poor dietary intake (low consumption of fruit and vegetables, and high intakes of saturated fat, salt and sugary foods and drinks).

Disadvantaged families spend a higher percentage of income on food compared with more affluent groups, have difficulty with accessing affordable, nutrient dense food and are more likely to lack adequate cooking equipment. All of these factors are said to make the achievement of a healthy, balanced diet problematic (Acheson, 1998, Kennedy, 2001, Neathey et al., 2004, Anderson, 2007, Wrieden et al., 2007). Furthermore, cultural attitudes toward food have been implicated in an individual's food choices because of societal pressures to eat less healthful foods (NHS Health Scotland, 1998, McGlone et al., 1999). The Food Ethics Council (Fitzpatrick et al., 2010b) reported that the impact of food culture on the Scottish population's diet is rarely acknowledged in current policies despite the role cultural background plays on individuals' health.

The White Paper on Health: *Towards a Healthier Scotland* (Scottish Office, 1999) emphasises the importance of parental health on child health (the effects of which are lifelong). Building upon the foundations of this white paper, a later report (Scottish Executive, 2003) underpinned initiatives to improve health, emphasising that people should be supported towards a healthier lifestyle. In Action 27 of this report, it was

highlighted that a plan towards healthy eating should include the promotion "…*of a healthy diet and food choices* [and]… *the preparation and provision of meals which offer a balanced diet"* (ibid. p 30).

Improving dietary behaviours in low-income women of childbearing age, pregnant women and mothers is considered key in facilitating a move towards better general population health (Scottish Government, 2008a). In recent years, local initiatives have been funded by the Scottish government through the Chief Executive Letter 36 (CEL 36) with the aim of improving the health of women and children (Scottish Government, 2008b).

It is recognised that perceived barriers such as lack of confidence about cooking (Lang et al., 1999, Beshara et al., 2010), time constraints (Jabs et al., 2007) and poor knowledge of healthy food production in the home (Stead et al., 2004), have the potential to hinder healthy meal production. For example, Lang and colleagues (1999) found that confidence in using cooking techniques categorised as healthy (e.g. steaming, poaching, stir-frying) were poorly associated with those of a lower income and educational attainment. Yet confidence in less healthy cooking techniques (e.g. deep-fat frying) were positively associated with these same groups.

Where inadequate food skills[1] are judged to impede healthy food choices (McLaughlin et al., 2003, Stead et al., 2004, van der Horst et al., 2011), interventions to improve individuals' knowledge and confidence of utilising food skills could contribute to improved dietary behaviours (Community Food and Health, 2011). Achieving a sound practical food skills base is considered to promote independence from foods which are

[1]For the purposes of this review, the term 'food skills' shall generally encompass everything required to prepare basic, composite meals from scratch, for example, the knowledge, confidence and ability to plan, purchase, prepare and cook ingredients to bring together a meal (Stead et al., 2007)

high in fat, sugar and salt (Jabs et al., 2007, Engler-Stringer, 2010a). Meals which require minimal preparation (e.g. ready-meals or takeaway food) (Fitzpatrick et al., 2010b), are said to contribute towards diets that are both energy-dense and nutrient-poor (Engler-Stringer, 2010b). Thus, food skills interventions theoretically encourage more control over dietary intake (e.g. increased quantity of vegetables, reduced levels of salt, sugar and fat) (Stead et al., 2004) and financial outlays (where home prepared foods can be less expensive for families) (NHS Health Scotland, 1998). The potential for a deficient set of practical food skills to negatively affect the nutritional status of individuals is said to be magnified in those of low socio-economic status (SES) (Engler-Stringer, 2010b).

The importance of mothers as 'gatekeepers' of their family's dietary health (Dobson et al., 1994, WHO, 2010) cannot be underestimated. Although considered stereotypical (Lang et al., 2001), consistent evidence illustrates the responsibility of women as primary caregivers in contemporary Western society (Dobson et al., 1994, Caraher et al., 1999, Stead et al., 2004, Wrieden et al., 2007). The burden placed on women to provide this care is affected by the intricate variables of living environment, financial resources, knowledge and aptitude to utilise food skills which are potentially reflected in both the health of herself and her family (Stead et al., 2004, Anderson, 2007). Within the family context, learned health behaviours are said to be affected by the habitual use of pre-assembled meal products where the opportunity for others in the household to observe and utilise practical food skills is lessened (Lang et al., 2001).

1.2.2: Current recommendations

Existing Scottish Dietary Targets (SDTs) aim to promote greater consumption of fruit, vegetables, whole grains and oily fish, and reduce intake of non-milk intrinsic sugars,

saturated fat and salt (Scottish Government, 2008a). The Food Standards Agency (FSA) currently focuses on the food skills base of young people. For example, it is recommended that education on dietary health, food purchasing, preparation and handling skills and food safety should be provided throughout school. However, there currently appears to be no recommendations in place to appraise adults' food skills (FSA, 2007).

1.2.3: Population profile

Poor dietary quality is associated with greater morbidity and mortality and is characteristic of the UK population (SACN, 2008, Scottish Government, 2011). Discernible variation in reported fruit and vegetable consumption exists between women living in the most deprived compared with the least deprived areas (with lower intakes of fruit and vegetables reported by those in the most deprived areas) (Bolton-Smith C, et al., 1991, Scottish Government, 2008c). Yet the Low-Income Diet and Nutrition Survey (LIDNS) demonstrated that most women in the survey considered healthy eating to be important (19-34 years: 78%, 35-49 years: 81%) and had either tried, or were trying, to eat more healthily (Speight et al. In: Nelson et al., 2007c).

The difference in mean food consumption over a seven day period as assessed by the LIDNS and the National Diet and Nutrition Survey (NDNS) in women aged between 19 and 64 and boys and girls aged between 4 and 18 is presented in Table 1.2. Whilst similarities in types of food consumed by the low income population and the general population were noted, it is clear that there are some noticeable disparities in the quantities of food consumed between socioeconomic groups (Speight et al. In: Nelson et al., 2007c). For example, people surveyed in the LIDNS tended to consume more processed meats and pizza, and fewer vegetables than was found in the NDNS.

Table 1.2: Mean consumption of food over a 7-day period in grams (*g*) between LIDNS[2] and NDNS[3] (Wells and Holmes, In: Nelson et al., 2007b)

	Women (19 – 64)		Children (boys and girls) (4 – 18)	
	LIDNS	**NDNS**	**LIDNS**	**NDNS**
	g	***g***	***g***	***g***
Meat pies and pastries	106	64	212	160
Sausages	64	44	199	165
Burgers and kebabs	53	39	159	127
Pizza	87	59	270	185
Chips, fried and roast potatoes and fried potato products	295	270	975	827
Other vegetables and vegetable dishes (not raw)	248	303	238	258

1.2.4: Factors that influence food skills

Some evidence suggests poorer diets are associated with less developed cooking skills of the 'main food provider' (i.e. the person most responsible for the preparation and provision of household meals) (Nelson, et al. 2007c). It is notable that more women than men (91% vs. 64%) in the LIDNS reported being able to prepare a meal from basic ingredients without assistance (termed "better developed" food skills). Despite this claim, the LIDNS has shown that few significant differences in nutrient intakes exist between households with "better developed" and "less developed" food skills.

Of most concern to women in the LIDNS were the cost implications of buying healthier foods (19-34 years: 34%, 35-49 years: 35%). The majority cited that more affordable

[2] LIDNS – 'Low Income Diet and Nutrition Survey' (a nationally representative survey detailing the food consumption and nutritional status of respondents from low-income households)
[3] NDNS – 'National Diet and Nutrition Survey' (a nationally representative survey detailing the food consumption and nutritional status of respondents across the whole of the UK)

healthier foods would help to improve their diet (19-34 years: 46%, 35-49 years: 51%). Improved cooking skills (19-34 years: 4%, 35-49 years: 0%), support or encouragement (19-34 years: 9%, 35-49 years: 5%) and information on how to eat a healthy diet (19-34 years: 3%, 35-49 years: 8%), were reported to be less important factors in facilitating healthier eating practice (Speight et al. In: Nelson et al., 2007c).

Fragmented lifestyles are also thought to contribute to poor dietary intake as structured mealtimes are less evident in socially disadvantaged households (Scottish Government, 2009). This evidence is of concern as a recent Scottish Health Survey (SHS) demonstrated that fruit and vegetable consumption was positively associated with frequency of family meals eaten together (Bromley et al., 2010). Parental fruit and vegetable consumption has also been highlighted in the SHS (Bromley et al., 2010) as being positively associated with children's fruit and vegetable consumption. Additionally, it has been found that adults living with children consume less fruit and vegetables per day than those living without children (Speight et al. In: Nelson et al., 2007c).

A shift in food culture (i.e. the collective way in which people experience and obtain food) (Fitzpatrick et al., 2010b) is said to have contributed to a general decline in food skills, which is postulated to impact on dietary intakes (Lang et al., 2001, Scottish Office, 2006, Jabs et al., 2007, Engler-Stringer, 2010a).

Demand for ready-meals has increased in recent years (Fitzpatrick et al., 2010b). Changes in dietary behaviours (increased use of pre-prepared meals, fewer families eating together, trends for eating outside of the home) may be a reason for, or a symptom of, declining food skills (FSA, 2003). For example, perceived barriers (lack of confidence, time constraints and poor knowledge of healthy food production) are

thought to contribute to an increased orientation towards convenience meals (Lang et al., 2001, Jabs et al., 2006, Jabs et al., 2007, Beshara et al., 2010).

1.2.5: Intervention work

Actions to improve health have been set out in the Scottish Government's (2008a) *Healthy Eating, Active Living,* which focuses on tackling the current poor dietary intakes and activity levels seen across Scotland, particularly in deprived households. WHO (2003, p.26) suggest that support should be provided for *"…community-based initiatives which aim to make a balanced diet more accessible to people on a low income"*. Taking into account limited resources of money, education or support which many on a low-income may encounter (Lang et al., 2001, Stead et al., 2004), CEL 36 work is aimed at facilitating better diets in these nutritionally vulnerable families (NHST, 2012). Enabling access to healthy food choices, by improving food buying and preparation knowledge (i.e. food skills), is considered an appropriate step towards this aim (NHS Health Scotland, 2006, Donnelley, 2010). The opportunity to improve this situation is said to have implications which could span beyond individuals and into the wider community by reducing the chronic disease burden associated with poor diets (Anderson, 2007).

The acquisition of food skills is argued as being a measure towards obtaining a healthier lifestyle (Wrieden et al., 2007), having the capacity to positively impact on healthier food choices (Baird et al., 2009, Curtis et al., 2011). Core changes to lifestyle habits such as increased cooking practice and improved dietary intake, in addition to enhanced confidence, have all been demonstrated from food skills intervention studies (with varying degrees of success) (Wrieden et al., 2003, Neathey et al., 2004, Wrieden et al., 2007, FSA, 2008, Curtis et al., 2011, Rees et al., 2011). The debate as to whether interventions have the capacity to have a long-term effect on individuals' food skills

and subsequent dietary health, however, remains. Addressing individual difficulties with accessibility to good quality, affordable food within community settings is considered to be a challenge (McGlone et al., 1999).

In 2000, a systematic review of the "*Efficacy of interventions to modify dietary behaviour related to cancer risk"* was undertaken by the Agency for Healthcare Research and Quality (Ammerman et al., 2000). The findings supported the view that dietary interventions are capable of having a positive impact on individuals' food choices. Interventions conducted within small groups, incorporating goal setting and food-related activities such as cooking sessions, were found to promote fruit and vegetable consumption and reduce total fat and saturated fat intakes (Ammerman et al., 2000). Goal setting has been found to be particularly effective in more socially deprived groups. In a study by Curtis et al. (2011), goal-setting was seen to improve healthy food choices from those who were most socially deprived. The social support element of participating in an intervention has also been found to prove beneficial in promoting healthier food choices (Ammerman et al., 2000), which complements findings from Baird et al. (2009). Dietary interventions have been reviewed and findings suggest that education and support are effective ways to improve knowledge and attitude towards healthy cooking practice (Baird et al., 2009).

There is limited evidence on the effectiveness of food skills interventions on dietary behaviours (Anderson, 2007). There is a view that attention towards a single barrier to health food choices is unlikely to have a major effect on health-related behaviour (McGlone et al., 1999, Stead et al., 2004, Wrieden et al., 2007). There are arguments which focus on the longevity of interventions on behaviours, given the varying and difficult circumstances which many families face throughout time (e.g. budgeting considerations, demands of family, time constraints, lack of equipment or stock) (Neathey et al., 2004), and the adaptive nature of individuals to respond to these

issues (Stead et al., 2004). It is thought that these issues may take precedence over an individual's perceived ability to make healthier food choices outside of interventions and in everyday situations.

At a wider level, policies concerning food security are implicated in an individual's ability to purchase foods for a healthful diet where limited accessibility to more affordable shops, for example, restricts purchasing power (Kennedy, 2001). Furthermore, engaging with or ensuring recipients' commitment over a period of time to interventions such as these has been reported as challenging (Kennedy, 2001, Wrieden et al., 2003, Neathey et al., 2004, Wrieden et al., 2007, Curtis et al., 2011).

An evaluation of the 'Get Cooking!' project in Wales, which aimed to promote cooking practice amongst youths and disadvantaged groups, found that whilst perceived cooking ability and confidence improved, motivation towards healthy eating did not develop. The project facilitators were careful not to give overt 'healthy eating' lessons but permeated lessons with some messages. In a qualitative follow-up it transpired that recipients were resistant to education about a healthy diet (Neathey et al., 2004). However, an evaluation of cooking projects by FSA showed that healthy eating attitudes could be positively affected by attendance at food skills interventions (FSA, 2008).

Within Tayside, CEL 36 funding has helped to implement such interventions to improve food skills, including 'cook and eat' groups (weekly practical cooking sessions combined with dietary education where recipients can eat prepared food) and community cafés (hospitality training facility where food is sold at affordable prices).

Food projects such as these are said to have the capacity to improve healthy eating practice (e.g. healthier food knowledge, choices, purchases and preparation techniques). Furthermore, interventions may enhance wellbeing and social welfare

through empowerment and the creation of support networks (McGlone et al., 1999, 2005).

The alleged lack of convincing evidence to support food skills interventions is perhaps balanced with the understanding that *"…*[i]*nitiatives to change factors within the complex business of obtaining, preparing and consuming food are bound to be varied in nature and outcome"* (McGlone et al., 1999 p:3). In view of this, qualitative data may prove beneficial in accounting for the individual experiences of recipients of an intervention which aims to make lasting changes to dietary health. The intervention being evaluated in this work is based on the 'cook and eat' design described above.

1.3: Maternal obesity

1.3.1: Significance to health

Maternal obesity (defined as having a Body Mass Index (BMI) ≥30 kg/m^2 at booking) is associated with significant morbidity and mortality from conception through to the antenatal, intrapartum and postpartum periods (CMACE, 2010). The risks associated with maternal obesity are presented in Table 1.3, where an elevated BMI has the potential to adversely affect the short- and long-term health of both mother and child (Heslehurst et al., 2008, NICE, 2010).

Table 1.3: Negative health implications associated with maternal obesity (Guelinckx et al., 2008, Heslehurst et al., 2008, CMACE, 2010)

Maternal stage	Mother	Infant
Pre-conception	Polycystic ovary syndrome Infertility problems	
Gestational period	Gestational diabetes Thromboembolism Pre-eclampsia Pregnancy induced hypertension Miscarriage	Fetal hyperglycaemia Fetal congenital anomaly Neural Tube Defects Fetal macrosomia Fetal injury Fetal death
Parturition	Induced labour Dysfunctional labour Caesarean section Instrumental delivery Death/severe morbidity	Very pre-term birth (<32 weeks) Large for Gestational Age Post-date birth (>37 weeks) Shoulder dystocia Stillbirth
Postnatal period	Postnatal death (within 42 days of childbirth) Postpartum haemorrhage Perinatal wound infection Longer hospital stay	Neonatal death Childhood/adult obesity

Almost one quarter (23%) of obese women are diagnosed with one or more co-morbidity during their pregnancy (CMACE, 2010). The most common comorbidities

are pregnancy-induced hypertension (PIH) and gestational diabetes (9% and 8% in a cohort of women with a BMI ≥35 kg/m², respectively).

In the Eighth Report of the Confidential Enquiries into Maternal Deaths between 2006-2008, 27% of mothers who died (from causes either directly or indirectly linked to pregnancy) were obese, where thromboembolism and cardiac disease were significant risk factors associated with maternal death (CMACE, 2011).

Greater risk of complications, dysfunctional labour and reduced odds for a spontaneous vaginal delivery (Heslehurst et al., 2008) necessitate that additional care is provided for obese women throughout their pregnancy and labour.

In a study investigating the impact of maternal obesity on the NHS, Heslehurst and colleagues (2008) demonstrated that additional care increases the economic burden on healthcare services. Complicated deliveries and increased risk of wound infections make prolonged hospital stays more common in obese women, further increasing the burden on health services.

As well as the economic burden from extra resources required for the care of obese pregnant women, there are logistical issues which maternity units must comply with, such as the provision of equipment which is designed to accommodate women with a BMI ≥30 kg/m^2. Despite larger blood pressure cuffs, appropriate weighing scales (for accurate drug dose calculations), extra-wide chairs, wheelchairs, beds and toilets being a necessary requirement, these are not available in all maternity units. Furthermore, there are manual handling and safety issue considerations for healthcare professionals (HCPs) caring for obese women, particularly during labour (Heslehurst et al., 2007, CMACE, 2010, CMACE & RCOG, 2010).

In the longer-term, maternal obesity in pregnancy can lead to incremental weight gain in successive pregnancies (Heslehurst et al., 2010) if gestational weight gain (GWG) is sustained postpartum. Thus, difficulties with weight management before, during and after childbirth are said to contribute to the obesity epidemic. Also, there is some evidence showing a negative relationship between maternal obesity and breastfeeding initiation and duration, impacting on optimal infant feeding practice (CMACE, 2010).

Despite these challenges, it has been reported that only 18% of maternity units across the UK offer obesity related advice to pregnant women and 11% of maternity units in Scotland provided specific dietary advice (CMACE, 2010).

1.3.2: Current recommendations

In 2010, the Centre for Maternal and Child Enquiries (CMACE) and the Royal College of Obstetricians and Gynaecologists (RCOG) (2010) produced a joint guideline on the 'Management of Women with Obesity in Pregnancy'. It is currently recommended that height and weight measurements are taken at antenatal booking in order to calculate a woman's BMI (NICE, 2008a, CMACE & RCOG, 2010). As maternal obesity puts women into a 'high risk' category during their pregnancy, additional monitoring and tailored advice to minimise risks is required. It recommended that antenatal care for obese pregnant women should include specific advice on minimising the risks associated with obesity. Healthcare professionals should receive training on how to deliver this information and encourage women to utilise available support within the healthcare service.

The National Institute for Health and Clinical Excellence (NICE) has recognised the importance of prioritising weight management in pregnancy (NICE, 2006, 2008b). Thus,

in 2010 NICE published 'Dietary interventions and physical activity interventions for weight management before, during and after pregnancy' (NICE, 2010). According to this guideline, obese pregnant women should receive personalised guidance on adhering to a healthy diet (based on the Eatwell plate) and engage in physical activity to prevent excessive gestational weight gain (GWG).

Although there are currently no specific recommendations in the United Kingdom (UK) on appropriate weight gain ranges (NICE, 2010), all pregnant women are advised to avoid increasing their energy intake until the third trimester, where an additional 200 calories per day is considered sufficient to allow for fetal growth and development (SACN, 2010). Additionally, women are made aware that advice to 'eat for two' during pregnancy is not recommended practice (NICE, 2010) but are dissuaded from aiming to lose weight (NICE, 2008b) due to the potentially harmful side-effects of following a calorie reduced diet (SACN, 2010).

To prevent incremental weight gain, NICE recommends that HCPs should advocate the health benefits of weight loss in the *postpartum* period (NICE, 2010).

1.3.3: Population profile

The prevalence of maternal obesity is increasing (Kanagalingam et al., 2005, Heslehurst et al., 2010) and evidence suggests that the rate of obese women becoming pregnant is accelerating (Heslehurst et al., 2006). CMACE report that the population prevalence of pregnant women with a BMI ≥35 kg/m^2 (Class II obesity) in Scotland is currently 5.5%, which is greater than the overall UK prevalence of 5.0% (CMACE, 2010).

Heslehurst et al (2010) demonstrated that there is a socio-economic gradient with regards to maternal obesity, with 16.4% of obese women living in the most deprived

areas compared with 9.9% living in the least deprived areas. Evidence that variations in health inequalities by deprivation categories exist is also supported by CMACE (CMACE, 2010). Increasing age and parity and being in a Black ethnic group have also been found to be strongly associated with being obese in pregnancy (CMACE, 2010, Heslehurst et al., 2010).

1.3.4: Factors that influence maternal obesity

Energy dense diets and sedentary lifestyles are thought to be a response to the so-called 'obesogenic' environment which impedes healthy weight maintenance. Pregnancy is considered especially challenging for women and excessive weight gain during this period may, in part, be due to contradictory dietary advice (e.g. from HCPs, family, friends or the media) during this key life stage. Additionally, weight gained during pregnancy and the emotional and physical challenges of raising a child or children is said to make weight management difficult (Kuhlmann et al., 2008, NICE, 2010).

1.3.5: Intervention work

Recently, NICE commissioned a systematic review to appraise dietary and physical activity interventions for weight management in pregnancy (Campbell et al., 2009). Included in this review were five randomised controlled trials (RCTs), five non-randomised studies (NRSs), two case studies, fourteen observational studies and two systematic reviews. All RCT and NRS interventions included a dietary counselling component. Some studies explored the effect of increased physical activity on pregnancy outcome, and observational data explored the association between diet, exercise and GWG. From this systematic review, evidence for improving gestational weight management through interventions was inconsistent and weak. Interventions

were not comprehensive in their approach and it was suggested that this could have contributed to the inconsistent findings observed. It was also noted that the results may not be representative of the UK as none of the studies were UK based.

However, included in this systematic review was qualitative evidence which was conducted in the UK which suggested that pregnancy is a time where women need accurate and consistent advice regarding appropriate diet and exercise.

Tanentsapf and colleagues (2011) reviewed thirteen interventions which aimed to minimise excessive GWG through dietary counselling. Outcome measures included GWG, postpartum weight retention and indicators of maternal and fetal health. This study concluded that dietary interventions led to significantly decreased weight gain during pregnancy and significantly reduced long-term postpartum weight retention. Insufficient evidence was available to make conclusions about maternal or fetal wellbeing. This review indicated that dietary counselling was somewhat effective in promoting appropriate weight management. It noted however that further evidence was needed to ascertain a satisfactory level of intervention intensity which would be most effective for obese pregnant women.

Pregnancy is a potentially suitable period during a woman's life to promote healthy lifestyle choices (Anderson, 2001, Couch and Deckelbaum, 2008). During this key life stage, women may be receptive to the idea of dietary change to try and address pregnancy related problems such as, nausea and constipation. This is a life stage where women are more likely to come into contact with HCPs and have the opportunity to seek advice on diet (Birdsall et al., 2009).

Other evidence suggests that interventions to improve maternal diet are most

effective if delivered when a woman is either planning to conceive or during the first 12 weeks of pregnancy (NICE, 2008b). However, limitations in implementing a preconception intervention have been noted (Kuhlmann et al., 2008) due to insufficient motivation or the high rate of unplanned pregnancy (Birdsall et al., 2009, CMACE, 2011).

Kuhlmann et. al (2008) raised another consideration for interventions aimed specifically at obese pregnant women. The authors noted the potential for additional attention on weight management to create anxiety and lead to overeating and excessive weight gain. In Polley et al's study (2002), the intervention group received lifestyle counselling to achieve appropriate weight gain throughout pregnancy. They found that obese women gained more weight than was recommended, whereas women with a healthy weight tended to remain within recommended limits. Anderson (2001) noted an issue on the opposite end of the spectrum with regards to weight management interventions during pregnancy. She highlights that dietary change is often misperceived to mean weight loss which may lead to negative effects on fetal growth.

It is argued that further evidence is required to determine the effectiveness of weight management interventions from the perceptions of obese pregnant women (Guelinckx et al., 2008, Tanentsapf et al., 2011). It has been suggested that interventions which aim to tackle obesity should consider corroborative evidence as part of their evaluation to determine how acceptable the intervention components are to recipients themselves (NICE, 2006). Furthermore, NICE (2010) states that there is

limited qualitative data available to ascertain what intervention components are effective for recipients.

1.4 Aims and objectives

The aim of this thesis is to evaluate the acceptability and impact of maternal and infant nutrition programmes aimed at women from deprived areas from the perspective of service users.

Specific objectives for each programme include:

1. Infant feeding workshops
    i. To determine current infant feeding practice and any changes in practice following attendance to workshops
    ii. To determine respondents' knowledge of appropriate infant feeding practice
    iii. To determine respondents' opinion of current infant feeding advice

2. Family food skills programme
    i. To determine respondents' perceptions of their food skills and how the programme influenced any changes in food skills behavior
    ii. To determine respondents' attitude towards nutrition
    iii. To determine respondents' opinion of the food skills programme format

3. Maternal weight management service
    i. To assess respondents' perception of their weight and influences on weight management
    ii. To determine respondents' opinion of a weight management service during pregnancy
    iii. To assess the perceived effectiveness of the weight management service to impact on positive lifestyle changes during and after pregnancy

Chapter 2: Methods

2.1: Contextual information

External evaluation work was conducted by the University of Dundee on the following mother and child focused interventions, developed and delivered by NHS Tayside:

- Infant feeding workshops developed to support mothers to practice appropriate weaning practice;
- Family food skills programmes developed to enable and encourage healthy cooking practice;
- A maternal obesity service ('OptiMUM') developed to provide personalised weight management advice for obese pregnant women.

Women were enrolled into health interventions via their midwife, health visitor or through 'word-of-mouth'. Interventions were designed and delivered by NHS Tayside and generally followed a similar aim. The implementation of each programme differed between areas, and programme facilitators, in response to community settings and available resources. Furthermore, interventions were designed to be flexible to suit the needs of the recipients who attended the services. Full details of these interventions are provided in Appendices 1, 2 and 3.

2.2: Subjects

Respondents were included in the evaluation providing they met the following criteria:

- Female
- Childbearing age (16-44 years), pregnant and/or mothers
- Participated in CEL 36 community intervention

- Participated in minimal service[4]
- SIMD[5] ≤ 6 (excluding maternal weight-management programme)

Those from socially disadvantaged communities were the focus of infant-feeding and family food skills group-based interventions, thus the Scottish Index of Multiple Deprivation (SIMD) deciles were used as a proxy for determining category of deprivation. SIMD provides a relative measure of deprivation by income, employment, health, education, skills and training, housing, geographic access and crime in small areas across Scotland. Thus, SIMD can be used to effectively compare concentrated areas (i.e. 'data zones') by providing a relative ranking from most deprived to least deprived. As the impact of the programmes on those living in areas of high deprivation was most relevant for the current evaluation, people living in SIMD ≤6 were considered appropriate for the inclusion criteria. As the maternal weight- management programme provides personalised care for pregnant women, it was considered that all respondents' experiences were pertinent to data collection and analysis, thus SIMD was not used to limit respondents in this instance. Furthermore, this particular intervention was not specifically targeted at low-income populations, whereas the infant feeding and family food skills interventions were conducted in areas of deprivation to encourage more women from disadvantaged areas to attend. This approach is concordant with priorities in health inequalities.

[4]Minimal service participated in for each intervention included: from booking or 20-week appointment through to 38-week appointment (maternal weight-management), at least 5 sessions (family food skills), at least 1 workshop from 2 (infant-feeding practice)

[5]Scottish Index of Multiple Deprivation, where SIMD 1 = category of high deprivation, determined by entering postcode data into the following Scottish Neighbourhood Statistics website: http://www.sns.gov.uk

2.3: Sampling

A purposive approach to sampling was planned. The aim of this study was to explore the perceptions of a pre-defined sample (i.e. recipients of an intervention who predominantly lived in areas of high deprivation) and it was considered that purposive sampling would be the most appropriate approach (Ritchie and Lewis, 2003).

It was not the aim of the current evaluation to provide data from a statistically representative sample of the population. Thus, an exploratory sample size of 15 respondents for the infant feeding, family food skills and maternal weight management intervention was anticipated to be sufficient to allow for main issues to be identified, unless new insights continued to emerge (Pope et al., 2000).

Respondents' engagement with the evaluation procedure was to some extent determined by project coordinators and the researcher worked closely with appropriate personnel to develop suitable engagement plans for evaluation (Mack et al., 2005). Therefore, the researcher had to consider advice about respondents' social and cultural contexts throughout the evaluative process and act accordingly. This included taking care over language used (to avoid communication issues and enhance respondent understanding) and general demeanour (e.g. casual attire, relaxed opening conversation, attentive listening). Due to the vulnerable nature of some groups, programme facilitators also expressed concern over the number of visitors or trainees present at any one session. For example, on occasion delivery staff requested that interviews be delayed because 'of the presence of trainee health professionals'.

The methods used have been largely determined by the practical realities of accessing women from deprived backgrounds via NHS services to participate in evaluation. Self-complete measures of questionnaires have been kept to a minimum due to the

administration burden of staff delivering interventions. The need for participant consent can also add another burden, although advice from the local ethics committee recognised that this work was primarily for service evaluation, not research, and were in accordance with keeping written permission requirements from respondents to a minimum. In line with good research practice, all respondents were fully informed of the evaluation procedure, their ethical rights as a respondent (Ritchie and Lewis, 2003) and were asked to confirm their consent before participating in an interview.

2.3.1: Maternal weight management programme

For the most part, respondents from the maternal obesity service were initially engaged via their midwives or appropriate personnel (who issued a participant information letter (P.I.L.) to recipients), during the 38 week or postnatal appointment. Where appropriate, P.I.L.s were also included in some 38 week appointment invitations. If respondents were able to participate in evaluation shortly following their routine appointment, an explanation of the evaluation procedure was provided along with reiteration of the respondent's ethical rights. If consent was confirmed, a private room was used to conduct the interview. In other instances (where respondents agreed to be interviewed but not in the period following their appointment), the researcher collected completed consent slips from the midwifery team and contacted respondents to arrange an interview for a later date.

Respondents were also identified retrospectively from hospital records and were sent P.I.L.s, consent slips and stamped addressed envelopes by an authorised health professional. From those who returned consent slips, telephone contact was made to confirm consent, provide further information about the evaluation and arrange an appropriate interview date.

2.3.2: Infant feeding and family food skills

Recipients of the infant feeding and family food skills programmes were recruited via two main strategies. Initially, appointments were made with those who had given written consent on self-complete questionnaires which were collected by programme coordinators. Postcode data were provided on questionnaires so only those residing in SIMD ≤6 were contacted. Telephone contact was made with these respondents to confirm consent, provide further information about the evaluation and arrange an appropriate interview date. It was originally planned that evaluation procedures be undertaken at a venue outside of the service area, i.e. interviews were to be conducted in respondents' homes. From contact details provided on questionnaires, respondents were telephoned and were given details of the evaluation procedure and were asked to confirm their consent. A date suitable for both researcher and respondent was arranged and a reminder text was sent prior to meeting to encourage a good response.

However, due to the high number of subjects who did not commit to an appointment, a decision was made to also conduct interviews at the intervention sites. With the permission of project coordinators (who informed recipients of the researcher's intended presence prior to attending), the researcher attended a programme to perform interviews. Consent was obtained from respondents and interviews were conducted in a private area of the intervention site. In these instances, interviews were undertaken without a prior appointment in order to suit respondents' willingness and availability to be interviewed at the end of the programme session. Consequently, it was not possible to ascertain SIMD category before undertaking interviews, which led to some interviews being conducted with women in SIMD category ≥7. The probability of this was minimised as programmes were generally conducted in more deprived areas. However, as recipients were not prevented from attending if they lived in a

more affluent area, this could not be entirely controlled for.

2.4: Data collection

2.4.1: Development and implementation of interview schedules

Semi-structured interviews were devised and implemented by the researcher (see Appendices 4, 5 and 6). The rationale for this approach was based on the type of data sought, the topics for discussion and the target population. Detailed, individual accounts of programmes, potentially sensitive pieces of information which may be affected by the presence of peers and potential issues with communication, limited availability or accessibility were taken into account (Ritchie and Lewis, 2003). Thus, face-to-face interviews, where the researcher could clarify information received in a private setting of the respondent's choosing were considered more appropriate than focus groups for this qualitative investigation. The main areas of investigation were personal experience of interventions (acceptability, barriers and opportunities, receptiveness) and perceived impact on knowledge, understanding and dietary behaviours. Different semi-structured interview schedules were devised for each service, each with their own principal themes (see Table 2.1).

Table 2.1: Principal themes of evaluation for each service

Principal themes		
Weight management programme	*Infant feeding group*	*Food skills group*
• Influences on weight management • Perception of weight in general • Opinion of service and advice • Use of 'weight targets' • Perception of maternal weight management • Perceived negative consequences	• Current infant feeding practice • Knowledge of term 'weaning' • Knowledge of appropriate complementary feeding practice • Opinion of current advice • Perceived impact of service on behaviour	• Perception of cooking • Examples of meals eaten • Perceived food skills issues • Attitude towards nutrition of self and children • Previously learned food skills • Influences on cooking skills • Perception of available advice • Perceived effectiveness of food skills programme

Interviews were rehearsed with colleagues to ascertain the relevance and appropriateness of questions. As data collection was an iterative process, interview schedules were constantly revised to suit the population group (Lacey and Luff, 2007).

2.4.2: Semi-structured interviews

Data were collected between December 2010 and April 2011 (for infant feeding and family food skills' programmes), and between June 2011 and November 2011 (for the maternal weight management programme). Open-ended questions were mostly used during face-to-face interviews, with the view to encourage a wide range of information from the respondents (Ritchie and Lewis, 2003).

The interviewer made an effort to remain non-coercive by stating the voluntary nature of participation in evaluation and the respondent's right to withdraw at any time (Mack et al., 2005). General information on the interview, including details on confidentiality and anonymity, was also included in opening statements to respondents. Informed, verbal consent was obtained before commencing the interview.

Interviews were conducted at a date and time which was suitable to respondents, namely to fit in with the practicalities of childcare. Venues were familiar to respondents as interviews were performed either at intervention site or in respondents' homes.

Interviews were recorded digitally (with permission) to allow for verbatim transcription and notes were made throughout and following the discussion. Where appropriate, thoughts on individual interviews or ideas about emerging themes were noted.

Respondents were asked to provide some demographic information (age, number and age of child/ren) for description purposes during analysis. Postcodes were taken to later to confirm or calculate respondents' SIMD (contingent on recruitment process). All identifiable demographic information was destroyed following data collection.

2.5: Data analysis

Data analysis was concurrent with data collection, in which the Framework Analysis (FA) approach was applied to the whole process. Developed by Ritchie and Spencer (1994), FA is particularly relevant for applied research as it is provides a systematic and transparent method of analysing data. Codes were used to organise repeating ideas

from textual data into relevant themes (Auerbach and Silverstein, 2003), the details of which can be found in Table 2.2.

Table 2.2: Steps in data analysis

1. Data familiarisation	Audio data were checked alongside transcripts
2. Thematic framework identified	All transcripts coded using *a priori* and emergent concepts
	Headings and sub-headings created to develop a detailed account of the data
3. Coding	Ascertain most pertinent codes for evaluation
	Re-check ALL transcripts (post completion of data collection and initial coding)
4. Charting	Case charts designed to include summaries of themes for each respondent including analytical comments, page references, shortened quotes
	Construction of ideas and synthesis of narrative
5. Analysis	Analyse specific, recurrent themes

Interview tapes were transcribed verbatim. To ensure data familiarisation and rigour, transcripts were checked alongside audio data before and during coding analysis (Mack et al., 2005).

Transcripts were thematically analysed through the use of codes (headings given to repeating themes within textual data). Firstly, codes were developed using *a priori* based on research questions. As this is an applied qualitative evaluation, *a priori* was used substantially to inform the analytical process (Pope et al., 2000). This was followed by emergent codes, derived from repeating ideas within the interview transcripts themselves, thus analysis was also inductive (Lacey and Luff, 2007). Sub-themes from key subject areas were developed to allow for a more thorough analysis.

Sections of relevant text were assigned to corresponding codes, in which a thematic framework was created (Ritchie and Spencer, 1994).

After initial coding, the thematic framework was refined, wherein codes pertinent to this evaluation were amalgamated and less relevant codes were disregarded with caution. Transcripts were read and re-read after the development of new codes, thus coding was an iterative process (Lacey and Luff, 2007).

A single researcher carried out both coding and analysis. To ensure transparency, reflective annotations were made and interpretations of themes or narratives given by the researcher were supported by textual data. The necessity for 'inter-rater' reliability is disputed (Pope et al., 2000). However, to ensure rigorous analysis, emerging themes were continually discussed with main supervisor and a second supervisor checked a selection of transcripts. A narrative of the interviews was created for each intervention using case charts.

It was originally intended that NVivo (a qualitative software package) would be used for data analysis. However, due to the researchers' inexperience with the package and time restrictions of the study to undertake further training, NVivo was later considered unnecessary (Auld et al., 2007). A spreadsheet database was therefore used to store, organise and collate demographic and textual data. Charts of emerging themes were created and used to develop a narrative of interviews. Recurrent themes were identified and analysed (Auerbach and Silverstein, 2003).

2.6: Ethical approval

Using information from the National Research Ethics Service (NRES), which coordinates and regulates ethical approval of research involving human subjects, the current

evaluation was deemed to be ‘service evaluation’. This work was undertaken for the specific purpose of feedback to the NHS programme facilitators of pre-designed interventions and did not involve randomisation of participants, thus fitting the objectives of the current study. NRES states that ethical approval is not required for service evaluation (NHS, 2009).

Good ethical practice was maintained throughout the evaluative process (Mack et al., 2005), where qualitative work was completed within NHS boundaries. Advice was sought from NHS Tayside’s Research Ethics Office regarding the appropriate process (notably for the maternal weight-management programme). It was deemed unnecessary to undergo full ethical approval because the work being completed was a service evaluation, of which the data collected from the ‘simple interviews’ conducted were anonymous (Ref: 10/GA/051; see Appendix 7). However, it was advised that a participant information letter and consent slip was issued to recipients of maternal weight management intervention. Study design, protocols and informed consent procedures were all approved.

Chapter 3: Results

3.1: Infant feeding

Approximately 67 women participated in infant-feeding workshops held throughout Tayside between December 2010 and April 2011. Of those who agreed to be contacted (n=42) for further evaluation, 23 were eligible (i.e. had participated in minimal service which was the equivalent of one workshop). A total of six potential respondents were not interviewed (not contactable or refusal) and two respondents who were interviewed had to be excluded from the evaluation due to living in an area in which the SIMD was out with the inclusion criteria (see Figure 3.1).

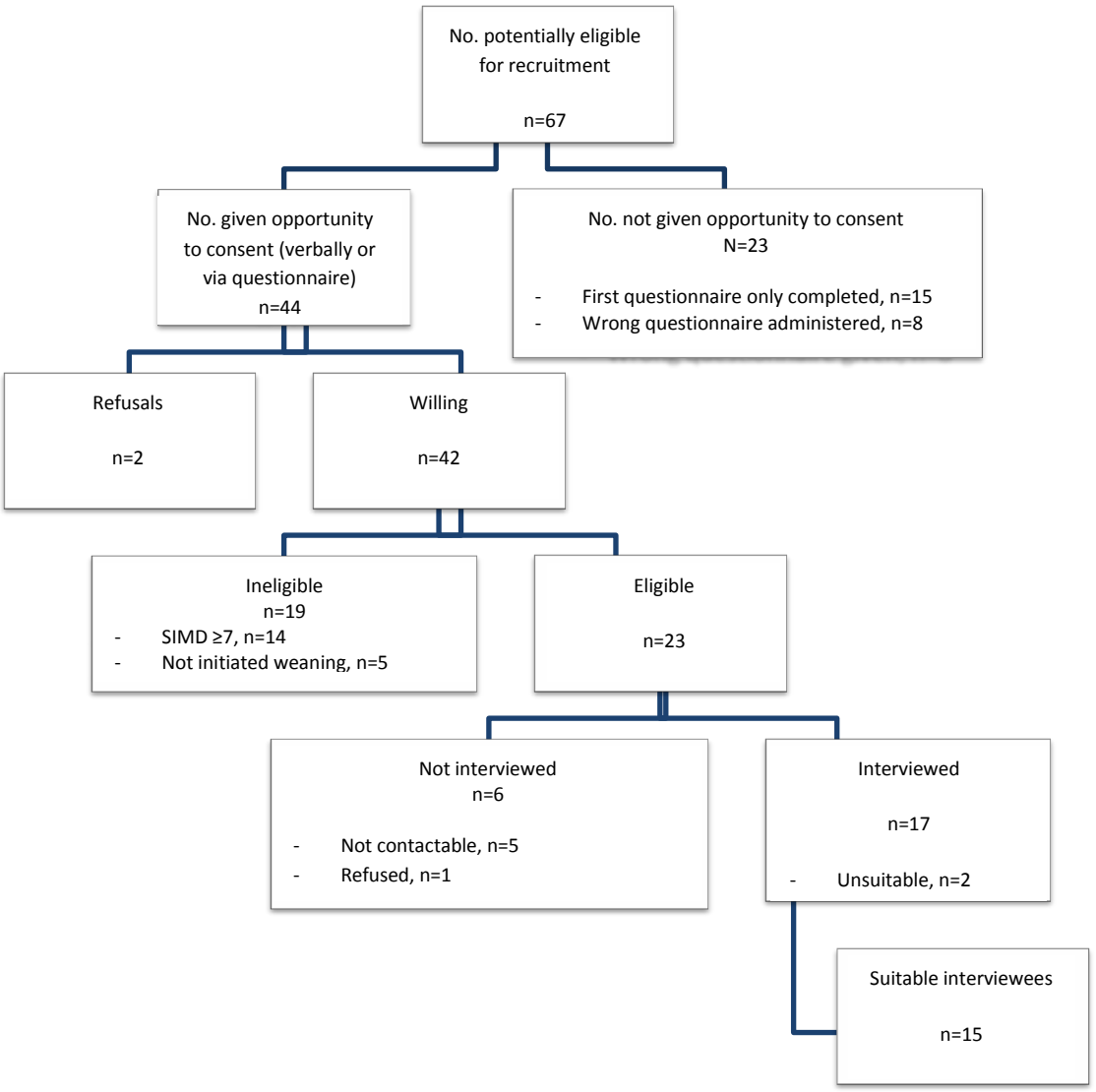

Figure 3.1 Flowchart detailing infant feeding respondents recruitment

Data collection was somewhat influenced by the enthusiasm of NHS staff to assist in the evaluation process. Respondents who underwent evaluation procedures were female (n=15), aged 21 – 41 years, with 1 to 3 children (see Table 3.1). A quarter of respondents (n=4) lived in areas of high deprivation (SIMD[6] 1 – 2).

Table 3.1: Socio-demographic information for respondents of infant feeding intervention

	Number of Respondents
Age group (*years*)	
18-24 16-18	5
25-34 19-34	8
35-44 35-49	2
Parity	
Primiparous	11
Multiparous	4
Age of infant at time of workshop[7] *(weeks)*	
10-15	3
16-21	9
22-27	3
Location of intervention	
Perth & Kinross	10
Dundee	1
Angus	4
SIMD *(deciles 1-10)*	
1-5	13
6-10	2

Interviews were conducted across Tayside with women who had attended a weaning workshop, either in community locations or in respondents' homes. All had initiated weaning by the time of interview. Reported infant feeding practice and the rationale behind it was discussed, including perceptions of recommendations and the weaning workshops.

[6] Scottish Index of Multiple Deprivation, deciles 1 – 10 where 1= highest category of deprivation

Illustrative quotes are supplemented with parity (primiparous or multiparous), respondent's age, and baby's age at time of workshop (in weeks), e.g. Primiparous, 26 years, 14 weeks.

Interviews were conducted in community locations. The main interview topics covered were respondents' perceived acceptability of the infant-feeding workshops, in terms of timing, delivery and the advice given. Throughout discussions, attempts were made to ascertain which messages from the workshops were reproduced within the home setting. The following topics are discussed:

- Knowledge and understanding
- Reported behaviours
- Views on intervention approach

A recurring theme which emerged from discussions with respondents highlighted that 'weaning' was a stage of infant development which was accompanied by much uncertainty and apprehension. The workshops appeared to provide some clarity and reassurance about 'weaning', reportedly changing respondents' current or intended infant feeding practice. However, uncertainty remained after the workshops which may relate to the timing and duration of the workshops.

[7] Where respondents attended more than one workshop, the age of the infant given is from the first attendance

3.1.1: Knowledge and understanding

Tentative explanations for the term 'weaning' (i.e. *"Just starting to give him a wee taste for solid food"*) indicated a broad understanding of the concept. Weaning was mainly understood to be the initial introduction of solids, only occasionally being described as a "*process".* No responses indicated an appreciation that liquids are also considered complementary to milk feeding.

Although respondents were generally aware of current recommendations concerning the timely introduction of solids, they demonstrated a vague appreciation for the underlying rationale. For some, the appropriate age to introduce complementary foods was a new concept or at least something which needed to be reinforced:

> *"…I didn't know that you couldn't gi' your bairn solids until they were six months…"*
>
> **(Multiparous, 38 years, 10 weeks)**

Perceptions of when to introduce complementary foods were often influenced by advice from friends or family members. However, those who appeared aware of current government recommendations seemed more likely to ignore lay advice.

Respondents reported gaining infant feeding information from a wide range of sources. In some cases, information was misinterpreted and influenced earlier introduction of solids. For example, sources of information included jars of 'baby food' labelled: *"suitable from four months"* of age which was found to be confusing when compared to government guidance.

The need for informed advice about appropriate infant feeding practice was clear as respondents described seeking literature (the volume of which was referred to as *"a*

nightmare" for some) before attending a workshop. In the absence of guidance from a HCP, some infant feeding decisions (i.e. weaning before six months) were largely influenced by this literature.

Participation in the workshops reportedly increased understanding of the rationale behind current guidance, regarding both immediate and long-term health outcomes. A limited grasp of the rationale behind recommendations was noticeable (*"It's to do [with] your baby's kidneys or something; they wouldn't be able to handle it"*).

A general appreciation for infants being mature enough to tolerate ("*cope with"*; *"handle"*) substances other than milk was reported. Indeed, a concern to avoid ill-health was considered a primary motivation to comply with recommendations:

> *"I think it's good to ha'e a recommendation, because you don't want to hurt the wee one either, you know, their wee stomachs and that…because they're still developing as well."*
>
> **(Multiparous, 38 years, 10 weeks)**

Additionally, respondents were able to credit the nutritional adequacy of milk until six months of age (*"…because they're getting all their nutrients…from the milk"*).

Whilst for some, receiving information supporting the timely introduction of solid foods was welcomed (*"…it's good to have a guideline"*), a degree of scepticism for current recommendations was also noted, with respondents inferring that *"every child is different"*.

Knowledge about the correct type of cup to use throughout the weaning process was also improved following the workshops:

> *"…they did say to use the sipper cups, rather than the ones that have got the valves in them, for giving them a drink of water, when they're eating*

their solids…it was a useful piece of information."

(Multiparous, 30 years, 22 weeks)

Varying levels of understanding for appropriate complementary foods was evident. Some respondents had been *"unsure"* about suitable complementary foods prior to workshop attendance, and it was apparent that education concerning foods had been well-received:

"…I wasn't sure what to start her off on as well, and that was good that they'd tell me what's the best foods to start with."

(Primiparous, 25 years, 17 weeks)

Typical examples of foods introduced during initial stages of weaning predominantly featured cereals (e.g. *"baby rice", "baby porridge"*) and fruit and vegetables (e.g. *"pear", "carrot"*). When asked which foods respondents felt were particularly suitable for babies during the early stages of weaning, answers tended to reflect these examples. However, this knowledge was largely (though not entirely) gained from previous discussions with health professionals or family, or through reading material. It seemed that the "*weaning group"* did educate respondents about a wider variety of suitable 'first foods' (e.g. *"butternut squash", "sweet potato"*).

The most significant lessons learned from the workshops generally included the "*healthier"*, *"cheaper"* and/or more appetising alternatives to commercial weaning food products (*"…the jar stuff is disgusting"*):

"…I think the example that stuck out was when she compared the sugar content in a low sugar Rusk with a digestive biscuit and the digestive biscuit had lower sugar…"

(Primiparous, 25 years, 20 weeks)

For many, enhanced awareness that foods which all the family could eat could be used during weaning meant they were not obliged to buy costly 'baby' products. Using every day *"adult foods"*, mostly consisting of *"finger foods"* (i.e. "*breadsticks", "rice cakes", "digestives", "stick of cheese", "pieces of toast"* etc.) was commonly cited:

> *"They also taught us what like finger foods, instead of buying expensive, like, rusks…which are actually full of sugar…you could…substitute stuff that we would eat instead that don't have sugars in them.* [For example] *Rice cakes and rich tea fingers and digestive biscuits…Half the sugar and half the price as well, for like a lot more."*
>
> **(Primiparous, 24 years, 24 weeks)**

Respondents also reported learning about appropriate food textures, such as introducing *"lumpier"* foods:

> *"Not pureed, it's mashed, because if you're introducing at six months then your baby should be able to eat mashed: that's what they taught us at weaning class."*
>
> **(Primiparous, 24 years, 24 weeks)**

However, even where respondents considered themselves to be more knowledgeable, some were still confused about current recommendations:

> *"Well I didn't really know…that you're supposed to make it like really runny and mash it all up so there's no bits, I didn't know any of that."*
>
> **(Primiparous, 23 years, 12 weeks)**

Overall, the positive messages of suitable foods appeared to be well-received and there was also an improvement in knowledge in terms of unsuitable drinks and *"foods to avoid"*. A greater understanding of cow's milk (e.g. full-fat milk only to be used in food preparation was explained) and avoiding "*goat's cheese"*, "*nuts"* and "*honey*"

were notable:

> *"…I didn't know you couldn't give honey to kids under one year old…You see I wouldn't have thought twice, I'd maybe stuck the bairn's dummy in honey you know…"*
>
> **(Multiparous, 38 years, 10 weeks)**

Respondents were concerned to establish good habits via the weaning process, particularly in developing their infant's future 'food preferences'. However, there were mixed messages regarding the suitability of fruit as a weaning food in this regard:

> *"… after* [the staff member] *had spoke about…making sure they're having a variety in their diet … but make sure it's not too much fruit because they get a sweet tooth…I am a bit worried…because I was giving him bananas and…giving him things that is probably natural sugar"*
>
> **(Primiparous, 24 years, 26 weeks)**

3.1.2: Reported Behaviours

There was confusion between the age at which an infant was first introduced to something other than milk and age of weaning commencement. Asked when mothers began weaning, replies were often close to the recommended age of six months. However, it transpired later in some conversations that infants were given "*just a couple of spoonfuls"* of food much earlier "*just to try".* Small samples of food did not appear to count towards the weaning process: "*…occasionally from about four months, I gave her little bits of sauce…But the first thing she really had was baby porridge."* Liquids were also not viewed as contributing towards weaning (*"When I started giving her…like an ounce of water…she would have been four months. Yeah she wasn't, like at 'weaning age'"*). Liquids were often introduced because of perceptions of thirst or

acting on the advice of HCPs (e.g. due to perceived constipation).

Prior to attending the workshops a few respondents reported being unaware of current recommendations. The workshops appeared to facilitate the translation of infant-feeding theory into practice, with some respondents reporting that they responded favourably to the advice received:

> *"To be honest, I didn't know why you had to wait…Like it's really bad for them…but if I hadn't heard that I would have probably just have went along with everyone else."*
>
> **(Primiparous, 24 years, 24 weeks)**

The workshops appeared to motivate respondents to comply with guidance as several spoke with conviction when reporting new insights about recommendations and rationale.

Respondents reported less use of specific commercial 'baby' foods following the workshops ("…*I thought I was just gonna buy jars of baby food all the time, but I've been making my own stuff"*). Observing the process of making complementary foods (i.e. cooking and mashing vegetables) and performing taste comparisons with commercial 'baby foods', appeared helpful for encouraging the adoption of new feeding practices:

> *"…before I started weaning her I was really nervous about it, because I'm not a great cook … And they showed us; just all you need to do, is a boiling pan of water, and just put vegetables in it and mash it up, so they showed you that it was really easy."*
>
> **(Primiparous, 20 years, 23 weeks)**

> *"…it was brilliant, and we made like little dishes as well, they done like the comparison thing…Sometimes* [commercial 'baby food'] *is a bit tastier but you're going to go with the healthier option."*

(Primiparous, 25 years, 13 weeks)

As well as reporting the benefits of homemade foods, respondents discussed the advantages of using every day *"adult"* or "*non-baby"* foods. Many appreciated education surrounding healthier, tastier and more affordable options for weaning foods:

> *"I didn't realise that you could use* [Ready-Brek]*. I was going to buy, like, the baby porridge stuff but she said 'it's actually better 'cause it's like bigger box, lower in salt and just cheaper'"*
>
> **(Multiparous, 27 years, 16 weeks)**

Learning how to use 'family' foods was often considered helpful and some described their enjoyment of preparing, for example, healthy homemade soup without the addition of salt for baby. There was also a viewpoint that this could be quite burdensome as, for some, it was deemed easier to feed a baby before the family meal time. In addition to healthy 'family' foods, however, there were also opinions that tinned beans with sausages and salted savoury snacks (e.g. *"Wotsits"*) were suitable

weaning foods.

Several mentioned the usefulness of information about using the correct type of cups. Despite some HCP advice surrounding appropriate cup use, insight from the workshops reportedly encouraged a change in practice:

> *"…they were…trying to encourage the cup, which I do do, and probably wouldn't have actually been doing; she would have got water in her bottle…"*
>
> **(Primiparous, 23 years, 18 weeks)**

Increased understanding appeared contributory to changes in food purchasing practice. Many explained their improved understanding (*"…even though it's baby food*

doesn't mean that it's not got any added sugar and salts") through the checking of nutrition information (*"looking at labels"*) "*more carefully"* and opting for *"substitutes"* to commercial baby food where appropriate:

> *"…they were saying that rather than going up the baby aisle you should check out the sugars and stuff in your own foods, because sometimes there's less sugar in it, which I've noticed as well."*
>
> **(Primiparous, 25 years, 17 weeks)**

Reading labels to check for salt and sugar content in foods was considered important for many respondents, which seemed to be a direct result of the workshops (*"I probably wouldn't have looked, I wouldn't have thought to"*).

Also, education on potentially allergenic foods meant that information seeking behaviour led to the avoidance of a specific baby product which contained gluten. However, there was a viewpoint that this approach of information seeking could be quite arduous ("*massive task"*).

3.1.3: Views on intervention approach

The perceived accessibility of the weaning workshops in comparison to HCPs (*"I know your midwives are there to help you but going to the classes was much better"*) was evident. Information outside of the workshops was not always reported as being helpful or available (*"Other than the weaning group, that's all there was"*).

A few respondents noted that they were made aware of the workshop through friends rather than their health visitor, which appeared to concern them (*"…I don't know if it's only certain…health visitors that know…*[to] *offer to you or something, 'cause mine didn't…"*).

The value placed on the workshops was appreciable. Receptiveness to specific infant-

feeding workshops being available was demonstrated through positive comments such as: *"…I think, like, everyone should be offered the chance to go because I really thought* [it] *was great"; "…I'm glad I went"*; *"…it was worthwhile going…";* "*you definitely did learn things"*.

It seemed that the infant-feeding workshops were *"informative"* and helped to explain the process of weaning, where many respondents reported no prior knowledge of infant feeding (*"I didn't really know anything; it* [workshop] *was really good."*)

The process of weaning was felt by several respondents to be a "*confusing"*, complex and *"scary"* stage of their child's development. However, participation in workshops was generally reported to have cleared previous uncertainty and eased apprehension, resulting in a change to both practice and attitude ("…*Made you more confident*"). A feeling of empowerment from workshop attendance was apparent. Some respondents reportedly felt more assured about introducing a *"bigger variety"* of foods (*"it's opened me up"*) into their baby's diet:

> *"…after…having that weaning class, I'm really experimenting with different things…I probably kept him on purée longer, just because I wasn't* [sure]; *I hadn't had that guidance…"*
>
> **(Primiparous, 24 years, 26 weeks)**

Even for those who felt that they knew a lot already (*"I think I kind of knew most of it"*), affirmation and an increased repertoire of foods ("*new recipes and ways of using food*") used during the weaning process was discussed. It was apparent that "*confidence"* surrounding infant-feeding decisions was important, regardless of whether or not respondents perceived a need to change their practice following workshops:

"…I just know to go ahead with what I'm doing because what I was doing is fine…Confidence… is essential because that is actually the bottom line…if you don't have the confidence to do it, you don't do it."

(Primiparous, 41 years, 26 weeks)

A repeating theme throughout the discussions was uncertainty about the weaning process, with respondents eager to do the *"right"* thing. Being able to participate in a workshop aimed specifically at mothers with young infants appeared to promote empowerment. Overall, workshop participation seemed to allay anxieties and contribute towards improved self-efficacy (*"…between here and the health visitor, I think I've done a pretty good job*").

Peer support was another factor which seemed to enhance respondents' experience of the workshops. It became apparent that weaning workshops were viewed as a platform of *"support"* with many gaining reassurance from peers:

"You're nervous about your wee yin and going to places like that there's other people in the same situation, and even just listening to everybody speak, it sort of gives you that bit of confidence."

(Multiparous, 38 years, 10 weeks)

Despite workshops generally being welcomed by respondents, it appeared that insecurity about the weaning process remained (conveyed predominantly through questions directed at the researcher during interviews).

Some respondents expressed continued anxiety or uncertainty, including a fear of choking, insecurity about appropriate timing for progressing infants through the stages of weaning, and the need for clarity on vitamins and which foods to avoid. Some comments revealed uncertainty about whether certain information from the

workshops was necessarily relevant:

> *"Just about giving the bairn bread…and not to put anything on it…I suppose it was good for the wee yin you know, but why don't I put jam or something on, or a banana or something?"*
>
> **(Multiparous, 38 years, 10 weeks)**

Respondents' awareness for not adding, for example jam to a plain piece of bread, did not appear to be supplemented by an appreciation for the rationale. It is not clear whether this information was not given by workshop facilitators, or was not retained by respondents. Either way the message was not fully understood. There was also a viewpoint that some information from workshops conflicted with information gained elsewhere (i.e. literature), which appeared to create doubt about the most appropriate infant-feeding advice to follow.

On the whole, uncertainty appeared to be minimised through the comfortable and interactive nature of the workshops, where the *"opportunity to ask"* questions and participate in *"discussions"* were reportedly encouraged and welcomed:

> *"…it was really informal, it was pretty chilled out and relaxed…you kinda fired questions left right and centre if you wanted to."*
>
> **(Primiparous, 25 years, 13 weeks)**

Many spoke of their ability to ask questions both in and out of the workshops, where additional telephone support appeared to be offered ("*I knew that I could phone and ask her questions"*). Continued contact with facilitators appeared to be helpful and reassuring for respondents as hesitation about appropriate practice after workshops remained. Some expressed the view that additional workshops were needed for respondents to gain further help and support. Although uncertainty was minimised, it

did not appear to be completely alleviated following the workshops ("*There should be, like, somewhere you can go for advice about it…Because sometimes I'm still not sure"*).

Overall, respondents seemed to be receptive to the group-based format, the content of the workshops and the supportive environment. However, there were issues worthy of note.

It was felt that the workshops could have been more *"balanced"* on certain areas of advice. Some perceived the workshop facilitator to be prejudiced about certain ideas ("*...just a few things that I thought: 'watch what you're saying because that's your opinion'"*). Subsequently, information gained from self-research before workshop participation was preferred to the perceived harsh advice of the staff member.

Additionally, it was claimed that respondents would be able to connect recommendations with future infant-feeding practice through the provision of *"real-life"* examples (*"…it sinks in with me better"*). Ability to retain information was also problematic for some who described parenting demands hindering weaning education ("*You're trying to keep* [your baby] *happy … And I remember thinking at the time, I wasn't paying attention and I didn't know which* [cup] *to buy!*).

An issue of inappropriate workshop timing with respect to infant developmental stage (i.e. age of baby) often transpired. They were *"too early"* (*"it's a lot to take in"*) for some who had not commenced complementary feeding and *"too late"* for others ("*there was a few of us that have started weaning at the four, four and a half months stage"*). Some respondents had obtained literature and advice from friends or family and therefore felt they had less to gain from the workshops. Thus, the timing of workshop delivery could result in a few areas of vagueness, discord with advice given, and irreversible practices (i.e. weaning commenced before six months).

Those respondents able to attend two workshops (one before and one after weaning

commencement) seemed to gain the best understanding of appropriate practice:

> *"But I think the one I went back to was the one I really learned most at, because I knew what I was trying to achieve at that point."*
>
> **(Primiparous, 31 years, 16 weeks)**

To assist respondents in practicing appropriate infant-feeding, suggestions were made to provide a "*refresher*" workshop throughout the weaning process to answer any unresolved or new questions ("…*two sessions just wasn't quite enough I don't think*").

Infant feeding workshops results summary:

- It was clear that women attending the infant feeding workshops were keen to optimise their babies' nutritional health but were uncertain and worried about the best approach to do this. Attending the workshops did appear to alleviate many of the concerns that mothers had but, it was also apparent that a lack of clear-cut 'take home' messages left some feeling confused about certain aspects of infant feeding.
- Practical demonstrations of preparing mashed vegetable dishes seemed to be helpful for mothers as many were not aware of the simplicity of this. Additionally, these demonstrations appeared to facilitate education about the health and cost benefits of preparing 'family foods' rather than purchasing 'ready-made', processed baby foods.
- As some mothers attended the workshops before they felt ready to absorb the messages being delivered and others felt that they had missed out on the opportunity to practice many of the messages, there were suggestions to increase the number of workshops available so that mothers could be more flexible in which workshops they attended.

3.2: Family food skills

Between November 2010 and July 2011, approximately 72 women participated in food skills programmes held throughout Tayside. Of these, a purposive sample of 41 women (aged 16 to 44 years) agreed to take part in a semi-structured interview. However, eleven women were ineligible and twelve could not be interviewed as they were unable to be contacted (no response to telephone call or incorrect number provided) or refused to participate. A total of 18 interviews were undertaken (Figure 3.2).

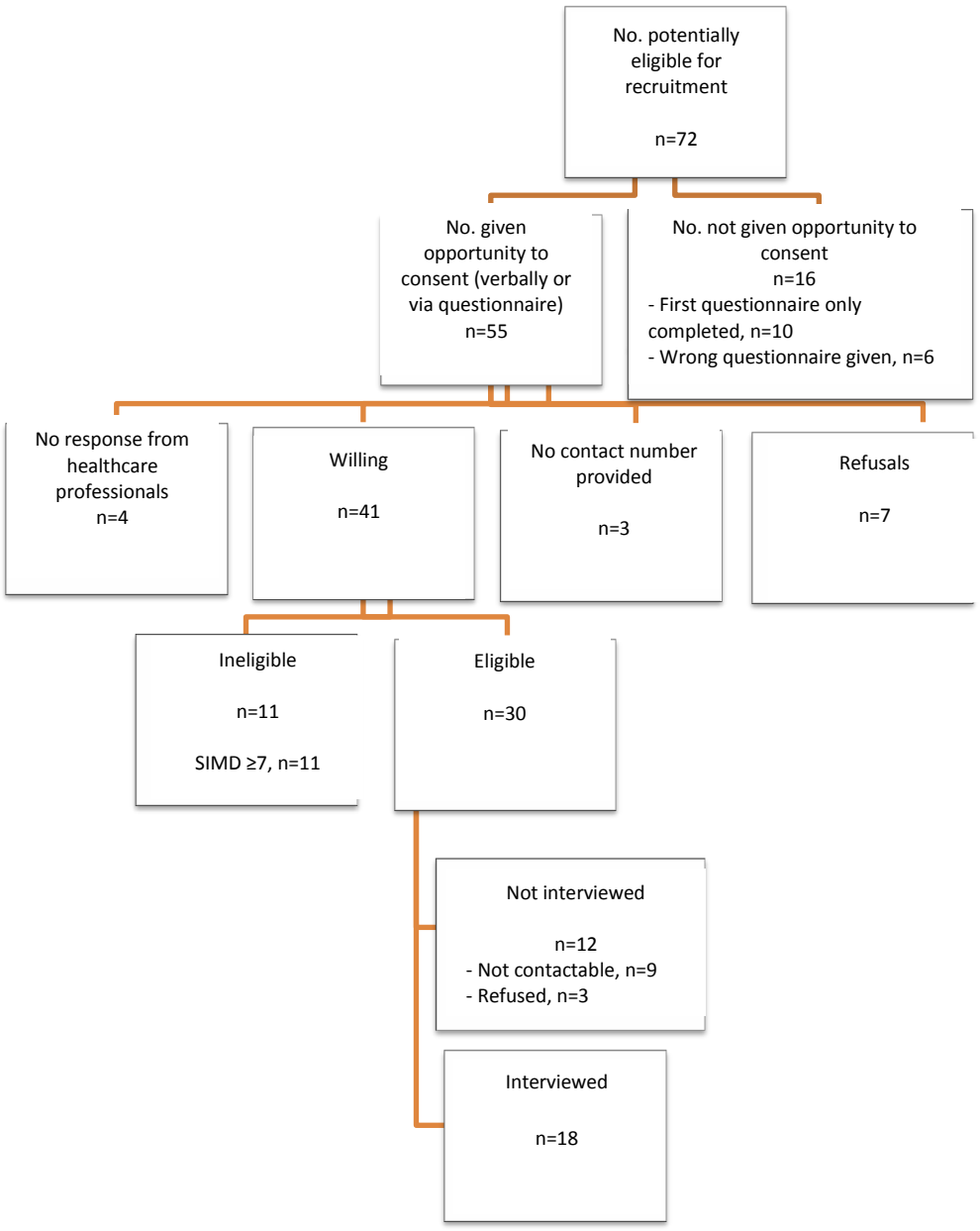

Figure 3.2 Flow chart detailing family food skills recruitment

Data collection was somewhat influenced by the enthusiasm of NHS staff to assist in the evaluation process. Socio-demographic information is presented in Table 3.2.

Most respondents were aged 16 to 24 years and had at least one child. Two of the three nulliparous women were pregnant. Most respondents (n=13) lived in areas of high deprivation (SIMD[8] deciles 1 to 2).

Table 3.2: Socio-demographic information for respondents of family food skills intervention

	Number of Respondents
Age group (*years*)	
16-18	4
19-34	11
35-49	3
Children	
Yes	15
No	3
Location of intervention	
Perth & Kinross	6
Dundee	9
Angus	3
SIMD *(deciles 1-10)*	
1-5	16
6-10	2[9]

Interviews were conducted in community locations. The main interview topics covered were respondents' perception of their 'food skills' in terms of knowledge and confidence and how these perceived skills could be applied in everyday situations. Furthermore, issues relating to food skills within the domestic setting were discussed along with personal views of healthy eating. The following topics are discussed:

- 'Food skills' knowledge-base
- Confidence in utilising food skills
- Frequency and repertoire of meal preparation
- Controlling factors
- Views on healthy eating

[8] Scottish Index of Multiple Deprivation, deciles 1 – 10 where 1= highest category of deprivation
[9] Respondents were residing in homeless accommodation (which was SIMD 8) at time of interview

A major recurring theme, which comes through each topic, was the idea that ability (e.g. knowledge of how to cook) was often tempered by feasibility (e.g. confidence, time pressures) of meal preparation.

Illustrative quotes are supplemented with respondents' age, number of children, and interview number, e.g. '24 years, 1 child, Respondent 4'.

3.2.1. Food skills knowledge base

The importance of having a sound knowledge base with regards to food skills was recognised as being an influential factor affecting cooking practice. There was a viewpoint that the programme helped to make cooking *"more understandable"*. The food skills programme was also explained as being "*invaluable"* (*"I've learnt loads from coming here…"*) and appeared to equip several respondents with the basic skills required to prepare meals from scratch:

> *"… being able to cook more food in the house, and learning how to shop properly…It's like macaroni cheese no longer comes out the packet: you can make the sauce yourself now….* [I've also learned] *how to cut up different…"*
>
> **(24 years, 1 child, Respondent 4)**

Describing previous struggles with food preparation techniques *("…before* [cooking] *was really challenging, but now it's became easier"*), it was clear that many viewed perceived improvements in food skills to be a direct result of attending the programme.

It was evident that many considered the programme's supportive environment (including having sufficient time to become accustomed to food skills), enhanced the learning experience. Furthermore, childcare provision during cooking programmes

(*"…they were great, they took care of our babies for us to let us cook"*) appeared to be important for some when learning food skills. For others, however, crèche facilities were considered distracting at times (*"…there was too much going on…there's babies crying and people come to the crèche…"*), and hindered learning and retention.

It transpired that some respondents had experienced difficult upbringings, which had not permitted a rich opportunity to acquire skills in the family home or through schooling before attending the programme:

> *"I: Did anyone teach you to cook when you were younger…?*
>
> *R: I did some when I stayed with my auntie but…. when I came home and I like, went off the rails, it just didn't occur to us anymore.*
>
> *I: And did you cook at school at all?*
>
> *R: I never attended school: That's why I'm here."*
>
> **(17 years, nulliparous, Respondent 12)**

> *"…my mum taught me how to cook but my mum passed away when I was ten and my dad was in full-time work…so I just, kind of, picked it up myself in a way then my gran was helping me as well."*
>
> **(24 years, 2 children, Respondent 1)**

Despite the programme's apparent success in improving knowledge, it appeared that the actual desire to reproduce skills learned (when in an everyday setting) could have a bigger influence towards practice than simply knowing how to cook:

> *"But at the end of the day, it's up to the people whether or not they take the advice and whether they're prepared to buy the ingredients and do it."*
>
> **(29 years, 2 children, Respondent 16)**

3.2.2: Confidence in utilising food skills

Although it was central to cooking practice, the improvement of food skills was not always judged as simply increased competency in cooking, i.e. the practical ability to prepare a meal from basic, raw ingredients ("*How to cook stuff"*). Rather, it transpired that food skills incorporated a whole host of factors relating to one's perceived proficiency in meal preparation, including *"confidence".* Where an individual felt they gained more than an increased recipe base from the programme, i.e. felt more confident, it appeared that their perceived ability to cook was enhanced:

> *"*[The cooking classes have been] *really helpful, yeah. I was scared to cook chicken and everything. I lived on takeaways for a year."*
>
> **(24 years, 1 child, Respondent 4)**

> *"… I've improved a lot on my cooking since I started these lessons…Because I used to cook a lot before my mum passed away and we used to cook together. And then after that I just couldn't be bothered cooking anymore, so I did lose that confidence…Yes, and now I've got it back I'm quite enjoying it."*
>
> **(17 years, nulliparous, Respondent 17)**

Food skills programmes reportedly enabled respondents "*…to make a meal from scratch"* through demonstrating that domestic cooking (i.e. "*home cooked meals"*) was achievable (*"…I didn't actually realise you could do that* [make burgers]*"*) and not necessarily a complex process (*"I thought there would have been a lot more to it…"*). Although many respondents talked of *"definite"* improvements in their perceived ability to "*cook more from scratch"*, some appraisals demonstrated that any improvements were considered to be minor (*"… possibly a little bit"*).

It was evident that previous assessments of being incompetent at utilising food skills were generally countered by attending the programme (*"…it gives us…ideas on what*

to do and that because I wasn't really good at cooking"). Practical demonstrations appeared to facilitate both the learning and enjoyment of food skills practice, compared to solely following written recipes which were often talked of as a deterrent to meal preparation. Respondents reported being uncertain (*"…you're not always sure"*) of their capability to follow a recipe through its stages to bring together a meal. The recurring theme of disbelief in one's capability to follow a recipe successfully, in comparison to being *"shown"* featured prominently:

> *"…with the recipe you sometimes get confused and you don't know if you're doing it right…Whereas if somebody is showing you, you know …it's going to look right by the end."*
>
> **(24 years, 1 child, Respondent 7)**

Respondents often shied away from trying new recipes because of previous cooking experiences at home, where unappetising meals left respondents feeling disheartened. Practical demonstrations with the support of the programme facilitator ("*…it was a lot easier having them there"*), however, appeared to be beneficial in counteracting this lack of confidence:

> *"I understand* [demonstrations] *more, because when I read instructions I've always got to ask anyway, because I never know what I'm doing."*
>
> **(16 years, nulliparous, Respondent 9)**

Although respondents valued the support of staff during the programme, some responses indicated difficulty in replicating meals learned at home without this support:

> *"I: Did you find anything confusing at all about the classes, or frustrating?*
>
> *R: How we can cook here and not at home! … I think it's just because like when you're here it just sort of comes more easier, 'cos you know you've got that, like somebody there to ask if you*

need to…[At home] you're on your own!"

(19 years, 1 child, Respondent 10)

For some respondents, improved confidence with regards to food skills was clear to see with the fresh belief that the food they prepare following the programme will, at the very least, be edible ("*…I was still burning stuff in the kitchen before I started coming here. I know I'm not going to have black bits in my food."*). Furthermore, there was a feeling of becoming more self-sufficient and adventurous especially when, for example, living on one's own:

"…it's okay to try and cook something even if you're not sure…and that's okay. And it's okay to adapt what you've learned as well."

(24 years, 1 child, Respondent 4)

3.2.3: Frequency and repertoire of meal preparation

Cooking more at home appeared to be related to both increased knowledge and confidence. When asked what practical use the food skills programme had been, responses included an increased range of meals to prepare at home (*"…I'm not just sticking to the same recipes anymore."*). A tendency to suggest new meals was apparent, even when respondents did not feel they had specifically learned any food skills (*"I wouldn't say improved. Probably broadened a bit…"*). Being able to try *"so many different recipes"* in the course of the programme was described as being *"really useful"* for respondents, where it was apparent many might not have attempted new meals otherwise:

"I: What have you found most helpful about [the classes]?

R: Possibly trying new recipes that you wouldn't normally at home…and then finding that actually they're quite tasty, and easy."

(35 years, 3 children, Respondent 15)

Respondents reported cooking more frequently as evidence of personal progress in food skills ability (*"I definitely cook more now since I've been coming here."*). An improvement in food skills was explained in terms of being able to *"cook more"* owing to a decreased reliance on other people to prepare food for them:

> *"Yeah, I've learnt loads from coming here: My dad normally cooks tea…but I've started cooking my own stuff because he doesn't come in until late…"*
>
> **(17 years, nulliparous, Respondent 12)**

In some instances, without guidance from programme facilitators the occurrence of reproducing meals learned from the programme was reportedly hampered by problems with recalling information, even when recipes were provided:

> *"I've got it all in my brain but I couldn't remember how to make quite a lot of the things. I've still got the recipes at home as well. I've not done any of them yet but there is a lot of things in it that I would do again."*
>
> **(24 years, 2 children, Respondent 5)**

The translation of food skills practised within the comparatively artificial environment of the programme was seen to be problematic for respondents when at home. Some reported that the home environment was very different with no 'on hand' guidance and support from programme facilitators to assist with food preparation or cooking. It became apparent that factors other than knowledge and confidence contributed towards likelihood of meal preparation.

3.2.4: Controlling factors

As mentioned, enhanced knowledge and confidence were not always sufficient to encourage cooking practice at home. Interrelating issues such as time, family demands, financial considerations and mood were notable factors.

Firstly, time scarcity and the demands of family life often appeared to negate any food skills learned within the programme. So ingrained was the perception that homemade meals are time-consuming that a viewpoint that cooking meals from scratch was not *"feasible"*, particularly if one is from *"a working family"* was strongly upheld. There appeared to be a real struggle felt from some respondents to incorporate food skills into daily cooking practice (*"It's more of a hassle than anything else"*), such was the need for quick and easy meals:

> *"…I would probably make my own curry [following programme], given the time… That's the thing when they're so wee, there's no time to do anything. Cut the veg and go back and fill the pots up five minutes later, once you've got them settled again."*
>
> **(24 years, 2 children, Respondent 5)**

Where the programme was notably successful, however, were situations in which respondents' pre-conceptions (*e.g.* making meals from scratch is time-consuming), were challenged through the 'hands-on' demonstrations:

> *"You actually find that it doesn't take quite as long as you think it's gonna take because I obviously [used to] think, right, well, I would make that from scratch but it will take me ages so I'll just buy a packet…"*
>
> **(35 years, 3 children, Respondent 14)**

Practical demonstrations also appeared to be useful in fostering a better outlook towards meal preparation, which was often described as being very much dependent on *"mood"*:

> *"It was good. Aye 'cos it would stick in my mind more, 'cos my concentration's really bad, and if I'm trying to follow a recipe, I can't be bothered and I just get annoyed."*
>
> **(27 years, 3 children, Respondent 8)**

Some expressed a new-found enthusiasm for cooking, describing how the programme had enabled them to view cooking as a source of enjoyment rather than a *"chore"*. However, this excitement for food skills was not always evident as some were more apathetic about cooking. For many, cooking was perceived to be another daily duty which burdened already time-pressured respondents. It became apparent that the domestic or social role, in which some respondents found themselves, dampened their desire or perceived ability to cook. Across all age groups and parities, when other responsibilities were more pressing, cooking from scratch was something that could be easily sacrificed:

> *"…if I'm busy* [and] *I've got to do stuff… I'll just quickly like just have some tuna on toast."*
>
> **(17 years, nulliparous, Respondent 12)**

> *"Last night it was a quick one, so it was just frozen* [food]…*"*
>
> **(27 years, 2 children, Respondent 6)**

> *"*[I made] *lasagne yesterday…I used a jar…because I was still working and had five kids…"*
>
> **(35 years, 3 children, Respondent 14)**

Advice on kitchen gadgets (i.e. slow cooker) appeared to revolutionise perceived time restrictions ("it's…actually changed my life") as it allowed for more efficient meal organisation and preparation. It was apparent that women were generally responsible for their family's diets. Where partners were asked to prepare a family meal, convenience foods were reported as being bought instead:

> *"…the girls had McDonald's on Monday because I was busy and my husband was going to cook. However, he didn't cook, he bought McDonald's."*

(35 years, 3 children, Respondent 15)

Family demands could also control respondents' perceived ability to reproduce meals. Lack of support from partners for new ways of cooking, e.g. the addition of vegetables or the preparation of dishes which required both a fork and a knife to eat, was seen to hinder respondents' desire to try dishes at home. It was not uncommon for respondents to discuss dealing with *"fussy"* eaters in the household which meant that they often yielded to family food preferences in their food purchasing and preparation habits. It seemed preferable to prepare meals which respondents knew their family liked, rather than risk wasted time or food attempting new meals.

The problem of trying new foods on other members of the family was countered in some cases by allowing respondents to take meals, prepared within the programme, home to their family. Many considered the programme to be *"helpful"* because they learned to prepare healthy meals which their whole family enjoyed:

> *"The home cooked meals* [have been the best thing I've learned to do]*. Learn how to cook properly for my kids; know that they're getting everything they need in the one meal…"*

(25 years, 2 children, Respondent 1)

Typical meals eaten at home were also influenced by financial considerations. It transpired that lack of money could evoke an emotional response to cooking (*"If I'm skint, I dread to look in my cupboards"*) and had a major influence on some respondents' eating behaviours. It became apparent that processed, frozen food was seen to be a safe, reliable buffer to hunger when money (not just time) was scarce:

> *"…some weeks, because I don't have a lot of money…I get, like, some freezer stuff just so I don't go hungry…"*

(17 years, nulliparous, Respondent 12)

3.2.5: Views on healthy eating

As previously described, some respondents felt that healthy meals were more easily replaced with convenience foods when restrictions were placed on time, mood or money. A difficulty with reproducing food skills gained from the programme, within the family home, was noticeable. Some reported that they were able to prepare *"healthier meals"* as a result of the programme, mostly through healthier food preparation techniques (e.g. *"oven cook"*). Insight into using a wider variety of vegetables in soups or curries, for example, was commented on as being useful for encouraging healthier eating habits. Yet, reported *"healthy eating"* and attitudes towards healthy eating conflicted with examples of meals eaten, which only occasionally seemed to include vegetables or fruit. Additionally, it was apparent that respondents could not always apply healthier cooking techniques to dishes which were not directly taught during the programme.

Respondents often described healthier eating in terms of eating *"properly"* and were reportedly less reliant on ready-meals or "*take-away*" food, judged by many to be illustrative of a reduced dependence on convenience meals:

> *"*[It's handy] *to make proper meals, because we'd always been relying on microwave meals…"*
>
> **(17 years, nulliparous, Respondent 17)**

Many of the respondents were themselves going through a transition period where the motivation to cook from scratch was often the result of becoming a mother or living on one's own for the first time. The importance respondents placed on their children's dietary health appeared to outweigh their own perceived health needs (*"…if I wasn't pregnant I*

would just, like, happily sit and eat rubbish all day, what's the point?"). Thus, it transpired that the major incentive for some respondents altering their own dietary habits was their views on being a parental role model (*"'Cos I never really used to eat veg until I had her, and I thought, well she's going to learn from me."*).

Whilst for some, the food skills programme appeared to have improved awareness of healthy eating (*"I'm taking more interest in what I eat"*), others stated that their dietary knowledge was *"…just the same".* Views which were expressed (i.e. *"I knew it all anyway"*) served to highlight that some respondents may have attended the programme primarily for social reasons. It was obvious that, for some, the opportunity to engage with peers ("*I'm just having a break, that's all, a cup of tea, a blether…"*) and *"get out of the house"* were key factors in attendance:

> *"The group's good for us all, because we all get out and get to do it around each other."*
>
> **(24 years, 1 child, Respondent 7)**

The need to socialise is further demonstrated by remarks that respondents wanted to attend the programme to relax rather than cook and suggested alternate cooking weeks to allow for more time to chat with peers. It was evident that attendance on the programme did not radically alter existing attitudes towards healthy eating (perhaps due to the desire for respite rather than a gain in knowledge). However, knowledge and understanding for healthier dietary choices did appear to have been strengthened from the programme.

Family food skills results summary:

- It was clear that many respondents struggled with their ability or confidence to prepare a meal from scratch before attending the family food skills programme. In light of this, the programme enabled respondents to appreciate that food skills were attainable by allowing them to prepare meals with the aid of friendly staff.
- The artificial setting of the programme was both facilitative and a hindrance for respondents. In one way, the programme encouraged attendance as respondents enjoyed the attention from staff, the crèche facilities and that they were able to practice food skills with a range of equipment and facilities at their disposal. On the other hand, this setting made it problematic for respondents when they attempted to practice food skills when at home, without these 'luxuries'.
- Repondents were receptive to the programme, they enjoyed the meals that they prepared, the informal structure and the chance to socialise. However, another issue that they had translating the skills learned into home life lay not in the programme format, but in the lives which some respondents led. Many noted family demands, gender roles, time pressures, lack of enthusiasm and money considerations as part of their everyday limitations to preparing meals from scratch.
- Many talked about learning healthier cooking techniques of meals they were already comfortable with preparing. However, there was little evidence that respondents were encouraged to consider eating healthier foods more widely as a result of the programme. Often, the nutritional needs of children were put before any needs of the mother and the meals which they cooked for their children were considered appropriate for their children. Thus, the programme was sometimes viewed as an opportunity to socialise rather than learn new food skills.

3.3: Maternal Weight Management Results

In the twelve month period between November 2011 and November 2012, a total of 149 women had been enrolled into the OptiMUM intervention. A variety of engagement strategies were undertaken, including OptiMUM staff informing potential respondents of the evaluation, invitation to participate in the evaluation by letter and retrospective identification of recipients by an authorised HCP (Figure 3.3).

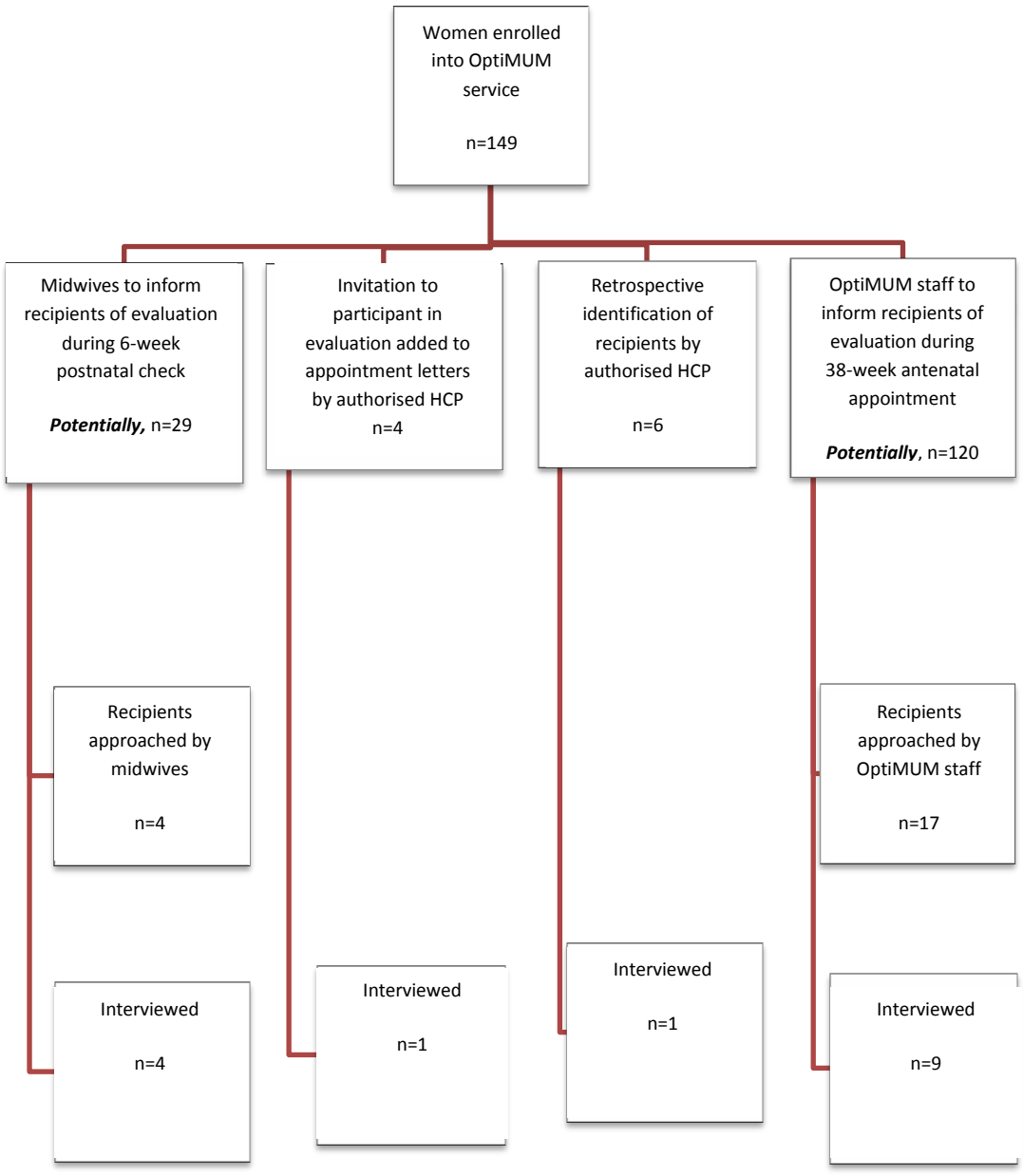

Figure 3.3: Flowchart detailing Maternal Weight Management service engagement

A total of 15 interviews were undertaken. Data collection was somewhat influenced by the enthusiasm of NHS staff to assist in the evaluation process. Socio- demographic information is presented in Table 3.3.

Table 3.3: Socio-demographic information for respondents of maternal weight management intervention

	Number of Respondents
Age group (*years*)	
16-18	0
19-34	14
35-49	1
Parity	
Nulliparous	4
Primiparous	5
Multiparous	6
Stage of pregnancy at time of interview	
Antenatal	10
Postnatal	5
Location of intervention	
Montrose	13
Dundee	2
SIMD *(deciles 1-10)*	
1-5	6
6-10	9

Respondents were aged 21 to 36 years and six were multiparous, five were primiparous and four were nulliparous. Most interviews took place with respondents (n=13) from Ninewells Hospital and over half of the respondents (n=9) lived in areas of lower deprivation (SIMD[10] deciles 6 to 10).

The following topics are discussed:

- Thoughts on pregnancy as a time for weight-management intervention
- Receptiveness towards intervention delivery
- Acceptability of delivery components
- Knowledge and behaviour
- Motivation
- Disappointment

Illustrative quotes are supplemented with parity (multiparous, primiparous, nulliparous), respondent's age, and if interview took place during the antenatal or postnatal period, e.g. Primiparous, 26 years, antenatal.

Perhaps the most overpowering theme which emerged from interviews with respondents was the importance of positive and continual relationships within the intervention, both with OptiMUM staff and fellow OptiMUM patients. The positivity of relationships seemed closely linked with respondents' positive perception of the intervention. Trust with the OptiMUM team appeared to also affect respondents' motivation to comply with, and act on, the healthy lifestyle advice which was being delivered.

It was clear that respondents' weight (i.e. their obesity) was a complex matter and different opinions were held about the optimal stage in a woman's life to provide a weight-management intervention.

[10] Scottish Index of Multiple Deprivation, deciles 1 – 10 where 1= highest category of deprivation

3.3.1: Thoughts on pregnancy as a time for intervention

The gestational period appeared to be an appropriate time in respondents' life course to receive weight management "*advice and support*", helping to prevent "*bad habits*" (such as poor diet or lack of physical activity) from worsening. This opinion was particularly apparent when respondents' excessive weight gain had stemmed from dietary ignorance ("*eating for two*") in previous pregnancies ("*I was completely naïve*").

As such, some multiparous women felt that they had little to gain from this intervention, having learned from previous dietary mistakes. Some noted that it was more suitable for first time pregnancies ("*it'd be better for first time mums, I don't need the help now*"):

> *"… yeah it certainly would have helped first time round. I think second time round [I] ... probably didn't need it so much because we gained the knowledge from going through it and more life experience: you eat too much ice cream you put weight on [laughs]."*
>
> **(Multiparous, 29 years, postnatal)**

Many had *"battled"* with their weight for years before pregnancy ("*[I've] been on a diet since I was ten years old*"), so the additional support was appreciated. The causes of excessive BMI were often deep-rooted ("*I'm … an emotional eater*") and although respondents had attempted previous weight loss diets, it was apparent that many found the lifestyle changes too difficult to sustain without support:

> *"I know you're kind of not meant to be an emotional eater but it's like well, it's hard to switch that off when you've done it all your life"*
>
> **(Nulliparous, 31 years, antenatal)**

Some respondents reported being apprehensive about the potential negative effects their excessive weight could have on pregnancy outcomes. As such, the opportunity to help manage weight and minimise associated risks through lifestyle measures during their pregnancy was appreciated.

Comments suggested that the opportunity to lose weight and get used to a *"healthier lifestyle"* before conception was preferable over initiating lifestyle changes during pregnancy. However, most held pragmatic views about pregnancy as a time for weight management intervention ("*I think it's a good way of getting the information to the mums*"). Some acknowledged that low contact with HCPs before conception would make it difficult to reach obese women before pregnancy, particularly considering the high number of unplanned pregnancies.

Lack of motivation to adopt healthy lifestyle advice ("…*speaking from experience, if you're not ready to listen; you don't*") before pregnancy was also cited as a problem with initiating a weight management intervention pre-conception. Respondents described being "*more inclined*" to adhere to dietary and physical activity guidance during pregnancy, mainly for health considerations ("*you don't want to jeopardise the baby or your health and your safety while you're pregnant"*).

Introducing dietary and physical activity advice during pregnancy was also described as a challenge for respondents. A fluctuating appetite, nausea or lethargy sometimes hindered desire to prepare or eat healthier foods, or take on more physical activity:

> *"I didn't do any exercise before so I wasn't suddenly going to start doing exercise [just] because I was pregnant. You feel twenty times more tired and heavy and the last thing you want to do is go and do any exercise"*
>
> **(Multiparous, 29 years, postnatal)**

There was also a fear that initiating "*exercise*" at a vulnerable time such as pregnancy would cause a *"shock"* to the system. Exercise was sometimes perceived as a high intensity activity which felt inappropriate during pregnancy ("*I think if you've been [exercising] before then fair enough, but you're going to give your body a bit of a shock if you suddenly start doing running"*).

Whilst the intervention was considered useful during pregnancy, for many it was the time following childbirth which was of more concern ("*personally, the more support you could get after would be better*"). There was an underlying attitude of pregnancy as a time to excuse bad habits (such as eating more and exercising less) and to enjoy this period before the baby is born.

There was an assumption that low weight gain would make it easier for respondents to lose weight in the postnatal period. Hence, it is worth noting that nausea throughout pregnancy was sometimes considered *"a blessing"* to prevent excess weight gain through reduced appetites. There was also a sense of pleasure in losing weight during pregnancy for the same reason. Little appreciation of how weight loss might affect the health of the baby was demonstrated. Additionally, it was apparent that respondents felt more motivated to concentrate on postnatal weight loss through perceived comments made by staff ("*they were saying like the more weight you put on during pregnancy it could be like harder to shift it and stuff at the end*").

3.3.2: Receptiveness towards intervention delivery

The relationships which respondents formed with staff appeared to be a fundamental part of the intervention. Most described positive first encounters with the OptiMUM service, owing to the personable nature of "*non-judgemental*" staff who reportedly

"*took the time*" to provide "*support*" (*"…from the time I came in it's been brilliant, the staff have been great*"). It was clear that respondents valued the support which came with being enrolled into the OptiMUM intervention. Midwives were often viewed as more than providers of medical care (*"They offered me tremendous support, they would do the scans…a shoulder to cry on; the lot"*).

Being informed of excessive BMI could be an unpleasant experience for some ("*it hit a nerve*"). There were reports of staff who informed respondents of their BMI in a demeaning manner, causing "*upset*" about an already personal ("*touchy*") subject. This approach reportedly made respondents anxious about attending subsequent appointments. If staff appeared sensitive and broached respondents' weight in a "*matter of fact*" manner, respondents seemed more receptive towards the intervention.

It was clear that respondents' opinions about being enrolled into the OptiMUM service were mixed. Minimal explanation of the service left respondents feeling confused about the intervention's aims (*"…they never really said what it was"; "I was quite shocked at it to be honest, 'cause you're always told not to lose weight"*). Some initially felt that the intervention was peculiar ("*weird*"), segregating them from other, non-obese, women receiving standard antenatal care ("*I felt sectioned off a wee bit from everybody else*"). This feeling of segregation was, however, minimised by the intervention being delivered through routine antenatal appointments:

> *"…the visits were just part of the pregnancy really; I wouldn't say it put a downer on it or anything"*
>
> **(Primiparous, 28 years, postnatal)**

Additionally, the attention which came from being enrolled in the intervention allowed respondents to receive personalised care ("*Yeah, well it's like they have more time and you were treated as a person and not just another pregnant bump that was coming through the door, instead of like a number*."). Personable staff who told respondents about the intervention's "*open door policy*" further served to enhance positive feelings towards the intervention.

As the intervention progressed, respondents reported that receiving specialised antenatal care which was different to other pregnancies had its advantages (*"…it turned out to be a positive thing because I got a good relationship out of it")*. The dedicated OptiMUM staff were important to respondents who appreciated receiving care from a core team of midwives ("…*the continuity was great, rather than coming in and seeing a different midwife every week who didn't know you*").

When respondents stopped receiving their care through specific OptiMUM staff, their perceptions towards the intervention changed. Most reported building trust and positive relationships through the dedication of OptiMUM staff. Thus, receiving appointments from other midwifery staff appeared to compromise respondents' experience of the service (*"[other midwives] don't seem to have the same amount of time or kind of empathy"*). Some felt as though they were "*told off*" or that they received "*a lecture*" from 'other' staff (non-OptiMUM midwives or nutritionist) if their BMI increased between appointments. Respondents objected to being punished, making some feel "*nervous*" about attending subsequent appointments.

Misunderstandings about the intervention meant that some respondents felt bewildered and annoyed at later being disciplined for losing weight ("*you put me to a 'fat mum class' and then moan because I've lost weight!*").

3.3.3: Acceptability of delivery components

The comprehensive intervention approach, such as counselling plus regular monitoring (e.g. weigh-ins, blood pressure checks and additional scans) appeared to be welcomed. Having the midwifery team take additional measures to ensure that pregnancies were optimally progressing was considered to be "*reassuring*" ("*gives you peace of mind*"). Respondents trusted that any problems, including excessive weight gain ("*keeping an eye on weight*"), would be brought to their attention ("*I'd rather be monitored rather than freak out and worry about something happening later"*).

Yet contrasting opinions highlight how the extra focus on weight was not always a comforting experience. Some expressed that weigh-ins served as a regular reminder of high BMI which felt "*depressing*".

3.3.3.i. Time

It was apparent that respondents could be at the clinic for several hours and sometimes saw a variety of HCPs, including midwives, an anaesthetist and a nutritionist. Whilst the thorough care received was appreciated, it could sometimes mean a time-consuming and tiring visit. It was, however, favourable to attend a single, lengthier appointment rather than have several appointments to keep. For example, paying for parking was described as an issue ("*I'm already taxed on my Mars Bars, I shouldn't have to pay extra for parking too!*").

For the most part, the length of appointments was considered "*ample*" to allow for monitoring and discussion ("…*there was always plenty time to answer any questions and certainly nobody was trying to rush you out the door*"). Yet there was an awareness of midwives' busy schedules and many were "*conscious*" of time restrictions within the clinic:

"So if I've had a question…[it's] been answered [but] if everything is okay and checks is fine, I'm happy just to go"

(Multiparous, 36 years, antenatal)

3.3.3.ii. Group activities

Group activities (see Appendix 3) were an opportunity for staff to provide additional healthy lifestyle advice, outside of appointments. Yet, there was a low uptake of the group activities.

Respondents highlighted that group activities were not always "*convenient*" to fit in with their "*lifestyles*". For example, "*work*" commitments ("*I personally wouldn't have time*") or demands of "*family*" made group activities feel impractical to attend. Relying on public transport (*"it would be a bit of a hassle*") and lacking enthusiasm about participating in exercise deterred respondents from considering 'Aquanatal' classes or 'Walks in the Park'.

There were some reservations about attending a weight management group with other obese women. Some appeared apprehensive about the prospect of attending group work and tended to "*shy away*" from this opportunity. Believing that group activities included open discussions about weight in front of others was considered off-putting ("*I'm not sure how much I would've participated"*).

For those who did attend, the optional group activities such as coffee mornings and healthy lunches within the clinic were greatly appreciated ("*I'd definitely recommend it*"). The opportunity to meet other obese pregnant women in a "*relaxed"* and non-judgemental setting seemed to enhance respondents' experience of the intervention ("*socially it was great"*). Respondents' confidence also appeared to be promoted:

> *"…you were normal* [within the OptiMUM group] *because there was a lot of women bigger…and you don't feel like everyone's looking at you going; 'Oh she's totally overweight'…because that's what your weight is all about, it's kind of insecurities"*
>
> **(Nulliparous, 31 years, antenatal)**

There was a sense that group activities helped to foster a peer support network, with women eventually meeting each other outside of OptiMUM to gain support *("…we meet up regularly*"). Some described forming lasting friendships from the group activities ("*I did make some good friends"*).

Respondents' emotional vulnerability was perceptible and is perhaps highlighted by the fact that no-one described themselves as 'obese' but rather tempered the intensity of the term with words such as *"larger"* or *"heavy"*. It was clear that respondents were self-conscious about their size, so the 'OptiMUM Aquanatal' exercise class was welcomed. Women felt more comfortable exercising amongst other, like-sized women:

> *"We did the Aquanatal together and it was just a lot of larger ladies, it was nice rather than being a pool with a lot of size six to eight pregnant women, you know what it's like, you just feel, it makes you feel worse."*
>
> **(Multiparous, 31 years, antenatal)**

3.3.3.iii. Key messages card

The 'Key Messages' card (see Appendix 11) was presented to respondents during interviews, to encourage discussion on its usefulness as a key resource material. Upon inspecting the card, some appeared to be aware of the 'Key Messages' from lifestyle advice given by an OptiMUM staff member (midwife or nutritionist) but had not previously seen the 'Key Messages' card itself. For these respondents, verbal advice

(even without the specific 'Key Messages' literature) seemed to facilitate appreciation for following a healthier lifestyle.

Despite perceptions that the 'Key Messages' cards were very simple ("*common sense on a card*"), many felt that they would have appreciated receiving this leaflet. These respondents felt that the "*straight to the point*" information could serve as a useful cue to reinforce practical messages and encourage healthier behaviours throughout pregnancy (*"…although it's…common sense you need to be reminded…you don't want to be eating takeaways for nine months"*).

This concise information was welcomed when compared against the wealth of reading materials received during pregnancy, which could be dense and overwhelming ("*it's just seven simple points instead of a whole book full of them*").

3.3.3.iv. Display table

The display table (see Appendix 3) at the clinic also seemed helpful for reinforcing messages. Some respondents noted areas of their diet which they altered after studying the visual prompts, e.g. stopped drinking fizzy juice because of the sugar cubes next to a standard bottle of juice.

Respondents could be dismissive towards advice because of the same messages being given at each appointment:

> *"…I just thought 'oh she told me all this last week…if it's not helped me last week it's not going to help me this week'… what she told me was what I do anyway, so it was sort of wasting time"*
>
> **(Primiparous, 25 years, antenatal)**

3.3.4: Knowledge and behaviour

Some respondents reported not being aware of receiving any additional advice or weight management discussion ("*there wasn't like talks or anything like that*"). Other than being given a *"leaflet"* at booking ("…*there was nothing different from my usual antenatal appointments"*). It seemed that respondents mistook this minimal advice as a positive reflection on their current lifestyle (*"…they maybe felt that they didn't need to [give me advice], cos I don't know if there is really much more I could have done*"). Some suggested that their lifestyle did not warrant any further attention from HCPs ("*I suppose if they had a cause for concern it would have been discussed but I wasn't doing anything wrong really*").

Yet, it was apparent that personalised advice may have influenced behaviour change:

> *"I know I didn't need to really change what I was eating and that but, you know, if I did then you would think more about what you were eating and stuff like that… Like if I did eat a takeaway every night or whatever then once you get told about the risks and stuff like that then you would feel that I maybe need to not do this."*
>
> **(Primiparous, 23 years, antenatal)**

Many respondents felt that being pregnant hindered their ability to follow health advice ("*It was probably quite hard for me to [do] what was advised…just because I was feeling so sick*").

It was noticeable that respondents generally felt that they had a good awareness of healthy lifestyle advice ("*I don't think it's a lack of knowledge why I'm overweight, I think it's just pure laziness*"). Yet there appeared to be difficulty between knowing about healthy lifestyle advice and making healthy lifestyle choices ("*… my weight's*

been a big issue for the whole time. I know what I should do but it's doing it and it's having the time to do it.").

Indeed, those who felt knowledgeable about current lifestyle recommendations, because of occupation ("*I'm a nurse, so I know it all, I just don't do it*") or previous weight loss attempts ("*I've been dieting since I was ten*") reported finding it challenging to adopt advice. It seemed for some that the more they apparently knew, the less knowledge was a factor which was perceived in need of changing. For these respondents, information and advice from the intervention often went unheeded:

> *"I mean as much as I'm heavy…I do eat quite regular, I don't eat anything drastically bad for me but so what she was telling me was what I do anyway, so [laughs] it wasn't really any help to me."*
>
> **(Primiparous, 25 years, antenatal)**

Candid appraisals about current lifestyle suggested that respondents were aware that they did not comply with health advice. Yet, they were satisfied that their diets and physical activity levels were satisfactory ("*I'm far from fit, but I'm a lot fitter than a lot of people I know that are thin*"). For example, perceived infrequent consumption of 'fast food' ("*it's not…every night*") and reported physical activity ("*I'm still quite active…so this 'going for a walk' doesn't affect me"*) contributed towards perceived lifestyle satisfaction.

Inadequate knowledge about healthy eating and physical activity was one of the factors which respondents speculated may have influenced their excessive weight gain. However, other variables were also noted (mainly having the motivation to initiate and maintain lifestyle changes), as being more influential towards improving

health behaviours than purely having sufficient knowledge (*"I know what I should do but it's doing it*").

Even following the intervention, it was apparent that respondents did not always link their behaviour with their weight. Some could not understand what caused their obesity, but were sure it was not due to poor dietary choices ("*I'm not saying that like I know a lot but…I'm not fat because I sit there and each chocolate and whatever, it's like I say, I've always been big"*).

3.3.5: Motivation

In some instances, the service appeared to motivate change through raising awareness ("*it's opened my eyes*") to the risks of obesity in pregnancy. Additional care, attention and monitoring from the OptiMUM service meant that some respondents talked of moderating their weight more effectively than in previous pregnancies ("*I'm now making more of an effort*"). Some also felt *"healthier"* from adopting advice:

> *"I think I was more healthy when I was pregnant because with my first child I put on quite a lot of weight. With her I didn't put on quite so much and I think that was the influence of sort of…[the OptiMUM service]"*
>
> **(Multiparous, 31 years, antenatal)**

However, motivation from the intervention was not always evident from all respondents ("*I just haven't changed the way I ate…I didn't think the OptiMUM, it didn't do any[thing] for me*"). Perceptions of a weakening intervention meant respondents found it difficult to maintain health behaviours which were compliant with the advice they had been given. Respondents actually said that initially, the service was very good but over time varying staff members, some of whom were

perceived as being less sympathetic than they had been used to, and fewer extracurricular opportunities meant that they experienced a sense of disappointment:

> *"I really enjoyed it…[I] felt normal and…you had the support not only from the midwives but from the other women, but then after that, nothing. So you kind of think; 'oh well'"*
>
> **(Nulliparous, 31 years, antenatal)**

Without motivational support from staff, a degree of cynicism for the simple 'key messages' was noted. Described as "*common sense*", respondents reported already being accustomed with the information presented on the card (*"…when you've always been big, you know it off by heart"*). Respondents described needing encouragement to put theory (i.e. messages) into practice (i.e. behaviour change).

3.3.6: Disappointment

Responses about the overall service varied, ranging from: *"If you'd had money you couldn't have paid for a better service"* to *"I honestly didn't get any benefit from it whatsoever"*. Some respondents noted that where the service once offered great support, perceptions of staff shortages led to a service which *"petered out"* and did not live up to its potential ("*I just feel it's just totally fallen away, when I've probably needed it the most"*).

It was clear that some felt disillusioned by the OptiMUM service, having received no additional care that was pledged in the booking appointment *("They tell you you're going to get all this support and then you don't get anything…"*). High expectations for receiving support to help with a long standing *"struggle"* with weight management were not met. Instead, a service which "*promised to be a lot more*" than was

experienced was the reality for some ("*To me there was no difference between the OptiMUM appointments and the ante-natal. I didn't notice any difference whatsoever*").

Appointments with perceived non dedicated OptiMUM staff who did not discuss lifestyle or provide support with weight management, together with no opportunities to attend group activities *("… the only one that I could probably do at the minute would be swimming anyway [but] I never got a chance to do that.*") was described as being "*disappointing*".

The disappointment extended to after childbirth too. Many felt that postnatal help should be inclusive of the service being offered. Some described that they were led to believe that they would receive help but didn't (*"…you get all this help and then nothing after your baby comes"*).

Maternal weight management summary results:

- Women reported struggling with their weight and so the invitation to receive help during their routine antenatal visits was generally a welcomed approach. Even those who felt that they had little to gain from the intervention could see the merits of being offered such help and advice with weight management. Notably, although pregnancy was seen to be an acceptable time to introduce a weight management service, there appeared to be a need to extend the intervention beyond childbirth to continue weight management motivation.
- It was clear that those respondents who were most receptive to the weight management service reported positive relationships with staff and fellow 'OptiMums'. The absence or deterioration of such relationships resulted in poorer perceptions of the service and subsequently less adherence to healthy lifestyle messages. Weight management was clearly a complex issue for respondents and positive relationships with staff and new friendships not only helped enhance respondents' self-esteem but motivated women to maintain their weight during pregnancy and inspired weight loss following childbirth.

Chapter 4: Discussion

4.1: Infant feeding

There is a need to tackle the current poor compliance with infant feeding recommendations, especially amongst lower income populations (NICE, 2008b). WHO suggests that carers of infants ought to be given the opportunity to make informed choices about how to optimally feed their infant from culturally appropriate information and trained support (WHO, 2003).

While some researchers claim that educational interventions are an effective method for achieving better infant-feeding practices (Hoare et al., 2002, Brophy-Herb et al., 2009, Watt et al., 2009), there is a paucity of evidence to determine their effectiveness (Tedstone et al., 1998). The current small post-intervention qualitative evaluation provides some insight to reported impact of infant-feeding workshops on recipient knowledge, understanding and dietary behaviours.

Irrespective of age or parity, the prospect of attending an infant feeding workshop was well received by respondents. This diverse sample suggests that the workshops were able to reach a wide range of people and, despite previous infant feeding experience, a need for clarity about this process existed. However, it was noticeable that messages from workshops can potentially add to, or create, anxiety.

Respondents generally rated the workshops positively and appeared to have improved knowledge, understanding and confidence following participation. Furthermore, respondents reportedly moved towards weaning practices which are in line with current government recommendations (DoH, 1994, WHO, 2003). However, challenges with the workshop delivery and content were noted, namely possible

misinterpretation of advice, anxiety after the workshops and perceived inappropriate timing of delivery (in relation to infant developmental stage).

Much like any health-related behaviour, the decisions affecting infant-feeding practice are dynamic and include knowledge, beliefs, external familial pressures, lay advice, cultural norms and commercial marketing (Daly et al., 1998, Alder et al., 2004, SACN, 2008). Furthermore, maternal education and socio-economic status have been shown to be highly predictive of poor infant feeding behaviour (Wijndaele et al, 2009, Wright et al, 2004). Although environmental factors cannot be altered through a single intervention, there is scope to focus on and influence beliefs about appropriate infant feeding (Alder et al, 2004) through supportive education (Heinig et al, 2006).

Findings from the current evaluation would tend to support evidence which suggests that mothers living in areas of high deprivation find it challenging to comply fully with recommended infant feeding practice (Heinig et al., 2006). Government recommendations were often confused by advice from relatives or peers, literature or even safety information on jars of prepared baby foods. A lack of knowledge or professional advice concerning infant feeding is known to be strongly predictive of poor infant-feeding practice (WHO, 2003, Alder et al., 2004, Heinig et al., 2006, Bolling et al., 2007, Wijndaele et al., 2009).

The workshops appeared to be an accessible source of infant feeding education. Respondents reported an improved understanding of current recommendations, complementing other work (Anderson et al., 2001, Black et al., 2001, Hoare et al., 2002, Alder et al., 2004, Wright et al., 2004, Heinig et al., 2006, Brophy-Herb et al., 2009). However, this improvement cannot be said of all respondents. Some held stanch views about their perceived ability to respond to infant cues rather than trust

recommendations to delay weaning, which has been shown in other work (Wright, 2004).

Attention must be drawn to the possibility of staff jeopardising interpersonal relationships with attendees. It was evident that where staff discredited respondents' opinions of how best to feed their baby, respondents found it difficult to accept any advice from staff. NICE guidance emphasises the importance of taking a personalised, objective approach to encouraging the adoption of recommended practice (NICE, 2007).

Evidence suggests that recipients are receptive towards personalised approaches to interventions (Black et al., 2001, Brophy-Herb et al., 2009). Whilst much of the intervention work reported to date has focused on individual home visits, limited effectiveness has been shown regarding improved infant-feeding practices (McCormick et al., 2007, Watt et al., 2009).

It was clear that workshops facilitated a peer support network which enhanced respondents' learning environment. It could be speculated that receiving expert advice within a peer group fostered a collective resilience to unhelpful external pressures, building confidence to adopt recommended practice. In line with NICE guidance on behaviour change, it seemed that workshops were able to encourage appropriate parental skills, instil self-efficacy and assist in creating *"social networks"* (NICE, 2007).

NICE guidance emphasises the importance of health behaviour interventions designing an approach which considers the needs of deprived groups and steers away from a standard, broad-based format (NICE, 2007, 2008). In view of this advice, it seemed that respondents were receptive to information about affordable alternatives to

commercial baby food products. Whilst alternative foods could be both a financial and health advantage, the possibility of interventions having an undesired effect on health behaviours (NICE, 2007) was apparent. Some erroneously concluded that any family food could be given to their infant and it was clear that many were more enthusiastic about suggestions to introduce alternative biscuits over advice to introduce fruit or vegetables as a snack.

Overall, it emerged however, that respondents reported preparing more fruit and vegetable based dishes and lessened their use of pre-prepared jars of baby food (DoH, 1994, SACN, 2008) which has been demonstrated elsewhere (Hoare et al., 2002, Watt et al., 2006). This is encouraging given the nutritional vulnerability of infants born into disadvantaged households (Daly et al., 1998, Bolling et al., 2007). Increased preparation of fruit and vegetable based dishes may offer long-term benefits to families' diets (Tedstone et al., 1998, Scheiwe et al., 2010). Respondents also demonstrated information-seeking behaviour because of improved appreciation for the salt and sugar content of foods. These practices could be important for families' future health, with greater awareness for the nutritional content of foods and drinks supporting improved food choices (Scheiwe et al., 2010).

The timing of workshop delivery, in terms of infant stage of development, is an important consideration to optimise workshops' effectiveness as a preventative strategy to poor infant feeding practices. Providing workshops months before weaning initiation may prove useful for preventing such practices as giving liquids or small samples of food before six months. Previous work has indicated that interventions initiated during pregnancy (McCormick et al., 2007), or when the baby was eight weeks (Hoare et al., 2002) or ten weeks old (Watt et al., 2009) are somewhat effective in

promoting appropriate infant feeding practice (Hoare et al., 2002, McCormick et al., 2007).

Yet results from the evaluation show that if workshops are perceived as too early they could prove overwhelming. Additionally, it was apparent that two workshops were not considered adequate given respondents' need for reassurance throughout various stages of infant development. Remaining uncertainty about areas of infant feeding after attendance would support the view that a different approach to timing of workshop delivery be considered.

Perhaps a format where workshops are available weekly and rolling advice about infant feeding is provided for all stages of development. For example, from breastfeeding advice (incorporating a CEL 36 target, see Appendix 12) to cooking healthy meals for the whole family. In this respect, workshops could embody a whole host of objectives to improving the nutritional health of women and their families.

A potential cause for concern emerged from the evaluation as there was also a need for clarity regarding vitamin use for infants. Improved uptake of Healthy Start vitamins for women and children is an objective of CEL 36 funding. Considering this objective, it may be worthwhile for future workshops to integrate effective promotion of these vitamins through information provision (NICE, 2008b, SACN, 2008).

4.1.1. Conclusion

It is recognised that a single intervention cannot tackle all indicators of poor infant feeding practice (Alder, 2004), such as maternal education or socio-economic status (Wijndaele, 2009). However, from the evaluation it is clear that a relatively short educational intervention was able to enhance respondents' knowledge, understanding

and awareness. In turn, this education led to some reported changes in behaviour (delayed weaning, increased use of home prepared fruits and vegetables, and avoidance of some potentially harmful foods).

The results of this evaluation must be applied with caution given the relatively small sample size and potential for bias. However, this evaluation can be viewed as a snapshot of infant feeding workshops, where the overall acceptability seemed high. There remains an issue, however, with the optimal timing and delivery of workshops to enhance recipients' knowledge and foster confidence in adopting recommended infant-feeding practices.

4.2: Family food skills

Healthy food choices can be affected by an individual's aptitude for food skills (Caraher et al., 1999, Lang et al., 1999, Bisogni et al., 2005). "Food skills" include familiarity with quantity and type of food items to purchase and how to prepare and cook these items in a synchronous manner. In addition, knowledge and confidence in performing these tasks (Wrieden et al., 2007, Beshara et al., 2010, Fitzpatrick et al., 2010a) will influence the quality of the final prepared items. Food skills and food security are arguably shaped by environment (accessibility to affordable foodstuffs), socio-economic status, ownership of adequate cooking equipment and social norms (Williams et al., 1994, NHS Health Scotland, 1998).

Perspectives on the acceptability and effectiveness of programmes to influence dietary change were considered from the viewpoint of recipients. Results from this small post-intervention qualitative evaluation into food skills programmes add to the body of research available on cooking interventions (McGlone et al., 1999, Ammerman et al., 2000, Kennedy, 2001, Neathey et al., 2004, NHST, 2012).

Distancing the programme from formal education sessions seemed favourable for this population group where an aversion for home economics at school was reported, in line with other work (Wrieden et al., 2003, Neathey et al., 2004). This informal and group-based approach may have promoted attendance, which Symon and Wrieden (2003) note is an important aspect of food skills programmes. Non-dietary measures of intervention success, such as the facilitation of peer networks, have been noted in previous work (McGlone et al., 2005, Baird et al., 2009). Additionally, the value of social support in promoting the adoption of healthier diets has been recognised (Ammerman et al., 2000).

The accommodating environment (dedicated time for cooking instruction, support from facilitators, joint decisions on meals and the chance to socialise with peers) appeared to assist with attendance to, and satisfaction of, the current programme. This approach has proved advantageous elsewhere (NHS Health Scotland, 1998, Wrieden et al., 2003, Neathey et al., 2004, Wrieden et al., 2007). Respondents reported a perceived ability to practice their food skills within the programme and some also claimed to have incorporated these food skills into their everyday life. The reality for many, however, was that the transition from the programme to home-life was challenging.

It seems that an intervention approach which encourages attendance must be balanced with an approach which contextualises food skills' education into everyday settings (Lang et al., 1999, Anderson, 2007). Thus, it can be questioned whether this facilitative environment, whilst enhancing attendance and enjoyment, actually created a false perception of cooking meals from scratch for respondents. The ease of preparing dishes, the enjoyment of the support and company from peers and the childcare facilities did not seem to relate to respondents' lived reality.

It has been said that "*Knowing about cooking techniques in principle is one thing, applying them is another"* (Caraher et al., 1999 p: 597). Evaluation of this programme suggests that having the ability to cook does not appear to guarantee the production of meals made from raw ingredients (Kennedy, 2001). The feasibility of being able to apply and incorporate food skills into fragmented lifestyles meant that more than knowledge was required.

The complexity of meal planning cannot be underestimated (Stead et al., 2004, Bisogni et al., 2005, Nelson et al., 2007a). Respondents in the current evaluation maintained

that preparing a meal from basic, healthy ingredients was desirable yet somewhat impracticable in everyday situations. Perceived time restrictions, price of food and family demands mitigated respondents' perceived ability to replicate dishes outside of the programme, consistent with other work (Stead et al., 2004, Jabs et al., 2006, Jabs et al., 2007, APCO Insight, 2012).

The ability to prepare and cook food is viewed as being empowering for individuals (Bisogni et al., 2005, Fitzpatrick et al., 2010a), allowing for more diverse food choices (NHS Health Scotland, 1998, Caraher et al., 1999). Evidence to show that women cook more often than men (Caraher et al., 1999) may be a persuading reason to promote food skills interventions towards women. Certainly, with the view of improving the nutritional health of disadvantaged families, women were the target of these food skills programmes across Tayside (Scottish Government, 2008a). Yet, it could be argued that cooking interventions consider a family approach (Ammerman et al., 2000) and redress the cultural norm of cooking being a predominantly female duty (Lang et al., 1999).

Lang and Caraher (2001) discussed the gender dynamics of cooking within society. Describing a time where only girls were taught 'household' skills, it can be questioned whether this evaluation has shown that a modern intervention which focuses its attention on the food skills of women only, is a step back in time.

Rather than provide women with the opportunity to enhance their food skills, it may prove more empowering for women to have help with cooking duties. Offering males the same opportunity to become enthusiastic by healthy cooking (which was observed from respondents in this evaluation by including them in food skills programmes may foster a more positive outlook on meal preparation. It was apparent that male

partners could be a substantial hindrance to meal replication, thus negating any learned food skills or desire to replicate dishes at home. Rather than impede healthier dietary choices because of unfamiliarity with, or apathy towards, new foods and ways of cooking, males could assist and encourage healthier meal preparation within the home.

Basic dishes were often prepared within the programme, presuming that simple ingredients and minimal cooking utensils were required. It cannot be taken for granted that respondents necessarily had access to these ingredients or owned the required equipment (Lang et al., 1999), yet this was not reported as an issue by respondents in the current evaluation. An alternative approach for food skills interventions could focus on cooking with ingredients, utensils and appliances which are familiar to the target population (NHS Health Scotland, 1998, Lang et al., 1999, Wrieden et al., 2003, Neathey et al., 2004, Wrieden et al., 2007). Additionally, cooking utensils and store cupboard staples used within the programme could be provided to recipients as a way of minimising potential barriers (i.e. lack of adequate equipment). Such approaches may assist with the translation of food skills into everyday practice, despite results from the LIDNS showing that assumed barriers to healthy diets (such as access to foodstuffs and cooking equipment), do not appear to be factors which restrict the diets of low-income populations (Nelson, 2007 p.139).

'Fuel poverty' should be a further consideration of food skills programmes aimed at low-income populations (Community Food and Health, 2011). Again, although fuel costs were not found to be an issue in this evaluation, the use of a microwave rather than cooker hobs, for example, may prove advantageous for encouraging cooking

practice. Particularly as financial considerations were often factored into respondents' actual food choices.

It is speculated that a relationship between confidence in food skills and healthy meal preparation exists (Wrieden et al., 2007, Beshara et al., 2010). The current evaluation would seem to support this notion, as knowledge and confidence reportedly underpinned respondents' perceived ability to practice food skills. Additionally, some claimed enhanced knowledge and confidence following the programme. It was apparent, however, that knowledge and confidence were not exclusively influential in promoting desired changes in food skills practice (Scottish Government, 2008a). Beshara et al (2010) claim that healthy meal preparation is more easily prioritised by those individuals who have confidence in their food skills irrespective of time constraints. In the current evaluation, however, cooking from scratch was only deemed feasible providing there was enough time, which may indicate a lack of confidence. Whilst this stipulation placed on cooking could represent underlying uncertainty in food skills, respondents reported seldom having the luxury of time at home as it was often prioritised elsewhere; caring for a family, other household chores or work commitments. It was clear that respondents were granted with a block of time within the programme, dedicated solely to cooking amongst friends. Whilst some were encouraged by learning how to prepare quick and easy meals from the programme, others were less convinced of the practicability of cooking from scratch when actually at home.

Given that a shift in food culture is said to relate to the observed decline in food skills, an intervention approach which is sensitive to existing dietary behaviours could prove advantageous in facilitating healthier diets. As well as using brand new recipes with

respondents, teaching healthier preparation methods for meals which are already often prepared and eaten by respondents may be an approach which eases respondents into new ways of cooking. Many had reported that healthier ways of cooking was an important aspect of food skills programmes, thus the value of adapting current cooking behaviours cannot be overlooked. Adding extra vegetables to jars of pasta sauces or showing respondents how to reduce their fat intake through healthier cooking techniques of meals which they already prepare may fit more appropriately with respondents' lifestyles.

The challenge of translating food skills learned from the programme into home life suggests that maintaining support following interventions (Baird et al., 2009) could be advantageous in sustaining learned skills. Lengthening food skills programmes, as suggested following previous work by Wrieden et al. (2007), may have also helped promote attendance. Theoretically, recipients would have then had more opportunity to learn how to adopt and translate these food skills into everyday settings.

4.2.1. Conclusion

Respondents reported a positive experience of the food skills programme. They cited gaining knowledge, confidence and learning to view cooking as a source of pleasure as examples of positive outcome. There is evidence that the intervention programme had qualities which were suitable for promoting food skills, with some reportedly making changes to their cooking habits to prepare healthier meals. However, the translation of food skills into a real-life environment proved somewhat challenging for others. Ability to cook was often compromised by respondents' perceived feasibility of cooking from scratch in everyday settings.

It would be unreasonable to expect a single programme to address all confounding variables which may hinder cooking practice, particularly those influenced by political decisions (e.g. limited accessibility to healthy foodstuffs (McGlone et al., 1999). However, given that a degree of success was apparent, it could be suggested that there is scope to build upon the foundations of the current programme format.

It may be appropriate to consider an intervention approach which goes beyond the kitchen. Evidence from this evaluation suggests that teaching respondents how to cook quick meals is a one-dimensional method of promoting food skills within the home. Integrating, for example, time management skills, or encouraging male partners in a household to prepare meals, may facilitate the view that food skills can be a feasible daily practice.

4.3: Maternal obesity

The increasing prevalence of obesity during pregnancy and the associated health risks for both mother and child highlights that a weight management intervention for obese pregnant women is justified. There is limited evidence on the effectiveness of weight management interventions during the gestational period (Campbell et al., 2009) and approaches to develop effective outcomes are desirable.

This qualitative evaluation aimed to explore the effectiveness of such an intervention by undertaking interviews with participants of a weight-management service in Tayside. A total of fifteen interviews with respondents were undertaken, gaining useful insights into what elements contribute to a successful intervention to manage weight in obese pregnant women. The semi-structured interview methodology afforded an opportunity to explore respondents' receptiveness to receiving a weight management service during pregnancy. Also, the acceptability of the intervention's delivery components, such as personalised advice, the 'Key Messages' card, the display table and group activities, were discussed.

Whilst it may be common for women to make dietary modifications during pregnancy for the health of themselves and their baby (Anderson, 2001), the specific effect of a weight management intervention during this time is unclear on dietary behaviours (NICE, 2010, Campbell, et al., 2011). Although respondents reported that pregnancy was generally an acceptable stage in their life course to receive help with weight management, mixed responses indicated that it may not have been optimal.

Comments which suggested that women were pleased to lose weight during their pregnancy highlight potential challenges in delivering a weight management intervention during pregnancy. A problem which has previously been highlighted by

Anderson (2001) who noted that dietary advice is often interpreted as dietary restriction.

Additionally, initiating changes during a time where respondents were dealing with physical issues (weight gain, lethargy, nausea) made for advice which could not be fully adopted. Thus, help to achieve a healthier lifestyle which would then aid weight loss appeared to be more desirable for the pre-pregnancy or postpartum period.

Whereas pregnancy could be a time of increased motivation to follow a healthier lifestyle, it was also seen as a time where women could excuse increased food consumption; a finite time period in which to enjoy dietary pleasures before facing severe restrictions postpartum to lose gestational weight gain.

Help with weight management in the intrapartum period is considered a preventative measure against incremental weight gain and related co-morbidities (NICE, 2010) over successive pregnancies. With this in mind, respondents from the current evaluation reported being disappointed with the lack of postnatal weight-management care, due in part to their perceived greater motivation to lose weight following childbirth. This response was comparable with findings from Weir et al (2010) in which respondents indicated that they were happier to wait until the postnatal period to initiate physical activity changes. Perhaps this attitude could be taken advantage of in future interventions.

In a study exploring service providers' perceptions of maternal obesity interventions, Smith et al (2011) raise the important issue of bridging support during the gestational period to manage weight effectively to encourage weight loss after childbirth. It would appear sensible not to ignore the postnatal period as a potentially critical period of a

woman's life to influence healthy lifestyle behaviours. At a time where women are perhaps more vulnerable to less healthy habits (Anderson, 2001), postnatal help could prove more helpful than during pregnancy.

A review by Tanentsapf and colleagues (2011) would suggest that dietary interventions during pregnancy are beneficial for reducing long-term postpartum weight retention. Despite many respondents feeling disappointed about the lack of postnatal care, the messages received during pregnancy may contribute to benefits after childbirth too.

The emotional vulnerability which sometimes accompanies obesity appeared to impact on several areas of the intervention delivery, particularly interpersonal relationships between respondents and staff members or their peers. Those who reported a positive relationship with staff seem more likely to describe feeling supported by the service to make lifestyle changes. Added to the opportunity to gain emotional support from peers, positive relationships were very important to respondents.

Previous work (Macleod et al, 2012) has shown that staff worry about damaging the patient-professional relationship by broaching the subject of weight management. Discomfort in initiating discussions about weight with obese pregnant women has been highlighted by NICE (2010) which advised training staff and allowing longer appointments to deliver advice adequately and sensitively.

For respondents, the importance of effective communication and efforts by staff to form positive relationships with patients was clear. Where staff effectively communicated warmth, understanding and healthy lifestyle advice, respondents appeared much more receptive to the intervention as a whole.

Yet contrary to the joint guidance from CMACE and RCOG, respondents in this evaluation did not always appear to have been provided with clear and accessible

advice about weight management during pregnancy. Adverse reactions to the service (i.e. apathy, unwillingness to change, upset) were noted from those respondents who reported receiving care from insensitive staff. It was clear that more effective communication may have led to better outcomes, such as promoting respondents' motivation to change lifestyle behaviours.

Campbell et al (2011) found that respondents often reported receiving inaccurate and contradictory messages from HCPs in their systematic review investigating the effectiveness of behavioural interventions to prevent excessive weight gain during pregnancy. Comparable with this study, it seemed that the aims of the service were ambiguous for respondent. Consistent and appropriate information from OptiMUM staff may have also prevented attitudes such as being pleased to lose weight during pregnancy.

Considering the particularly sensitive nature of weight-management, having sensitive and familiar staff deliver this advice is perhaps even more important in antenatal care. Where respondents in this evaluation felt that the advice provided was inconsistent between professionals, their satisfaction with the intervention diminished. These results are similar to findings from the ScHARR review (Campbell et al., 2009) which found that poor advice made it difficult for recipients to adopt lifestyle changes.

'Continuity of care' was a theme which transpired throughout interviews, as respondents appreciated receiving antenatal care from a core team of midwives. NICE guidance acknowledges the importance of delivering 'continuity of care' for pregnant women (NICE, 2008a). It was noticeable that as this part of service delivery became disjointed it impacted on perceptions of the service as a whole.

There was initially a lot on offer for recipients of the OptiMUM service, i.e. coffee mornings, healthy lunches, walks in the park and OptiMUM Aquanatal. These opportunities were welcomed by those who made use of them, but some respondents reported not being able to attend extracurricular activities.

Reported responses from the current evaluation would seem to suggest that a service which was dependable would have been preferred over one which initially offered a variety of resources but weakened because these opportunities could not be sustained. Not being able to continue with extracurricular activities or see the same core team of midwives appeared to have a detrimental effect on respondents' perception of the service.

The need to make available clear and consistent advice for recipients of maternal obesity services has been well established (Campbell et al., 2011, Furness et al., 2011, Weir et al., 2010). Despite the evidence, it has been shown by these studies, plus findings from the current evaluation, that a clear and motivational approach to information delivery is required.

Regardless of a desire for more postnatal support, few women returned to their postnatal check-up, with similar low retention rates being found elsewhere (Kuhlmann et al, 2008). There were comments which suggested that respondents felt abandoned by the service so it could be questioned whether they gave up on the service and its messages before it ended. Receiving help from a service with a definitive ending perhaps served to heighten respondents' awareness and anxiety about their obesity. Support with lifestyle change was important to respondents but they knew that this would not be available to them following childbirth.

4.3.1. Conclusion

When the maternal weight management service delivered 'continuity of care' from staff who were sympathetic to the emotional needs of the recipients, positive outcomes were reported. Forming trust in relationships was vital to the positive impact of the service for respondents who appreciated the additional care and attention received.

However, the current evaluation demonstrates the importance of delivering a service which is dependable and consistent. Mixed responses highlights that a somewhat disjointed service had been delivered and not all respondents gained the same opportunity to receive weight management care as per the protocol (see Appendix 3).

Obesity was clearly a complex issue, requiring sustained efforts to promote healthier lifestyle behaviours. An intervention which continued beyond childbirth may have conferred to greater motivation from respondents.

5.0 Recommendations

It was clear that respondents were receptive to the interventions, mainly due to staff friendliness and the opportunity to socialise with peers as well as learn about nutritional health, so it is prudent to build upon these foundations. However, a common theme throughout each of the evaluations was that mothers had a tendency to be more concerned with improving their children's health rather than their own. Perhaps a service combining all three interventions (i.e. infant feeding, family food skills and maternal weight management) is a delivery approach worth considering. Improving nutritional knowledge, confidence and ultimately behaviour was the overarching aim for each intervention yet they appeared somewhat disjointed in their delivery. Encouraging women of childbearing age, pregnant women and mothers of young children to attend an on-going 'Healthly Lifestyles' programme, centred on the family food skills format, for example, could potentially minimise some of the issues which transpired during discussions. Examples of these issues included; mothers feeling that they were not able to attend the infant feeding workshops at the best stage of their infant's development and recipients of the maternal weight management service feeling abandoned and disheartened following childbirth. This combined format could provide attendees with help and support to eat healthily during pregnancy, learn family food skills and receive advice about feeding their newborn, infant or toddler. However, it would be important for any future programme to make efforts to empower women and encourage them to make healthy lifestyle changes for their own wellbeing, as well as for the benefit of any children. As such, shifting the focus of attention to generally facilitate 'Healthy Lifestyles' for all, rather than viewing women as potential child bearers or role models for their child's eating behaviours, is a more holistic approach which is respectful of women's health in their own right.

Additionally, this 'whole family approach' could facilitate healthier eating behaviours by encouraging attendance from fathers or male partners which could then, in turn, address the gender bias evident in some of the respondents' lives. Women enjoyed the family food skills programme but some found it hard to bring any learned food skills home because of family dynamics which saw males

determining many of the food choices. Therefore, if men were to be invited to such a programme, they could learn and be encouraged to prepare and/or cook healthy meals which could also take some of the onus away from women to be the sole gatekeepers of their family's health.

Another recommendation following the evaluation of three CEL 36 funded interventions is that any intervention aimed at those from disadvantaged backgrounds should be mindful of such. Therefore, when considering the family food skills programme, for example, a format which is realistic to the attendees' lives may have conferred to better outcomes in terms of utilising learned food skills at home. The programme aimed to teach attendees to cook from scratch but many felt this was unattainable and continued to use, for instance, jars of pre-prepared sauces when at home. By using these jars of sauces within the programme but suggesting ways in which extra vegetables could be added may have seen more respondents adopt healthier food preparation techniques. In this way, the food skills programme could bridge healthier food choices by taking a step-by-step approach.

6.0 Limitations

This small-scale, localised evaluation has limited generalisability. However, the aim of the qualitative analysis was not to generalise findings but rather provide in-depth individual accounts of specific aspects of the interventions. Thus it may possible for these specific experiences to be considered in the development of future interventions aimed at disadvantaged families.

The sample was subject to considerable bias as the researcher somewhat relied on the cooperation of project coordinators to initially engage with respondents. It is also possible that only those respondents who had a positive experience of the interventions may have agreed to participate in an interview. The reported responses would seem to indicate that this was not the case, however, as a variety of experiences were voiced from respondents.

The respondents in the current evaluation are not necessarily representative of low-income women across Tayside or the wider UK population.

The SIMD deciles applied to the inclusion criteria were broad (SIMD deciles 1 – 6) and it may have proven more satisfactory to the objectives of the evaluation to only obtain data from those women residing in areas of highest deprivation (SIMD deciles 1 – 2). Additionally, difficulty with engagement meant that the SIMD exclusion criterion was not applied to respondents in the maternal weight management intervention. However, interventions were delivered in areas of high deprivation or in local hospitals accessible to those from deprived areas. Given that all respondents attended the interventions regardless of SIMD, it was considered both suitable and necessary to increase the SIMD deciles to improve engagement. Also, maternal education is often a better indicator of infant feeding choices and pregnancy weight problems so it would

have proven more advantageous to obtain additional details to allow for a more tailored evaluation. However, it was considered that obtaining these details would not be ethical as the respondents were asked to participate to give feedback on the intervention. Therefore, they may be been confused as to why personal details, such as education or income, were being asked of them. Asking respondents for their postcode (first four digits only) allowed the researcher to later calculate SIMD and was an indirect way of obtaining deprivation data.

A significant weakness of the current work was that the researcher was performing an external evaluation of interventions designed and implemented by NHS Tayside and each project coordinator adapted the delivery to suit recipients (NHST, 2012). Whilst this may have conferred benefits to the recipients, it made analysis and transferability of results problematic.

Qualitative data analysis is a laborious, time-consuming process. The data collected was specifically analysed for key themes relating to service provision and did not explore wider issues relating to food choice which also emerged during the interviews. However, every effort was made to analyse the data to a standard which was appropriate for the remit of this evaluation and Framework Analysis aptly suited the time restrictions of the evaluation. Complying with the Framework Analysis approach, data analysis was rigorous and robust and allowed for the main themes to be explored.

Researcher bias is also a challenge with qualitative analysis but this was minimised through frequent discussions about the data with the main supervisor and the keeping of a reflective log.

7.0 Overall Conclusion

The current evaluation attempted to explore the impact of three different interventions which aimed to improve the nutrition of women and children living in disadvantaged areas. The work was addressed from three perspectives: infant feeding practice, family food skills and weight management during pregnancy.

In the infant feeding and family food skills programmes, participants were generally positive about their experience, reporting benefits such as enhanced knowledge, skills and behaviours. Confusion about feeding matters, however, raised concerns that classes may be needed for longer, offered at different stages of family development or indeed provide more personalised advice. The translation of knowledge into home action remains a challenge as life circumstances, family preferences and time demands compete with good intentions to develop and use practical food skills. It was also notable that whilst classes were considered accessible and acceptable, the reach was low and such approaches are unlikely to have a major impact in population terms and at best, form one part of a solution aimed at improving family food choices.

With regards to the maternal obesity intervention, the findings indicate some of the teething problems of a service under development. Participants welcomed the opportunity for supportive and continual relationships but expectations were not fully met. The findings do however suggest there is interest in this service from women not only during pregnancy but continued into the postpartum period.

Overall, the need to develop and sustain supportive services and skills development for weight management and healthy food choices was welcomed by the target group. Further development of these services, along with wider public health efforts, offer

considerable potential to impact on the long term health of women and children from deprived areas.

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8.0 Appendices

Appendix 1: Details about infant feeding workshops

Aim
To improve weaning practice amongst low-income, disadvantaged women

Objectives
Enhance complementary feeding knowledge (timing and foods introduced)
Progress infant feeding practice towards government recommendations (introduce solids at 6 months)

Target group
Low-income women
Young women

Delivery	
Enrolment	Health visitor to approach women or through word-of-mouth
Setting	Local community centres
Delivery	Health visitors to deliver service to small groups of women
Frequency	Two sessions
Duration	One hour, once a week
Miscellaneous	Babies present

Intervention content	
Practical demonstrations	Tasting sessions (shop-bought vs home-made food for infants)
	Samples of foodstuffs which are appropriate for use in weaning, e.g. ○ Plain digestives or rice cakes instead of baby rusks ○ 'Ready-Brek' instead of baby rice
	Price differences between special 'baby products' compared to foods which are suitable for whole family demonstrated

Advice and information on complementary feeding	Appropriate age for first introduction of solid foods and reasons for recommendation (e.g. gastrointestinal development)
	Information on up-to-date research about weaning
	Suitable and beneficial foods to give to infant throughout weaning process, e.g. ○ First introduction of solid foods at 6 months permits food to be mashed, not pureed ○ Food for whole family suitable for infant providing that no salt is added ○ Finger foods are advantageous for hand-eye coordination ○ When infant has progressed onto more solid food, carrot sticks (for example) help with infant's speech development
Informal discussions held within group	Questions from women encouraged throughout session
Integration into other CEL 36 activities	Encouragement to breastfeed Promotion of other services such as community cafés (Dundee Grow Well café), which promote improved infant feeding practice

Outcome and evaluation measures		
Process	Uptake	Proportion of target population utilising service
Impact	Pre- and Post-questionnaires to obtain quantitative information	Assess women's attitude towards, and knowledge of, complementary feeding
	Semi-structured interviews to obtain qualitative information	Experience of service Attitudes of infant feeding Knowledge of infant feeding
Outcome	Infant feeding practice of women compared to government recommendations	

Appendix 2: Details about family food skills programme

Aim
To improve family food skills, i.e. healthy eating behaviour, amongst low-income women and infants

Objectives
To equip women with skills necessary to cook nutritious meals
To create a social support network amongst women in disadvantaged area

Target Group
Women in disadvantaged areas
Women of childbearing age

Delivery	
Enrolment	Health visitor to make women aware of service or through word-of-Mouth
Setting	Local community centres, community flats or Angus College (Arbroath)
Delivery	Project manager initially and mothers (some of which are child minders) (Arbroath)
	Project manager and volunteers (Brechin, Forfar & Perth)
Frequency	Approximately two hours per session, once a week
Duration	Six sessions (Brechin & Perth) or on-going drop-in (Arbroath & Forfar)
Miscellaneous	Children present and involved throughout session (Arbroath)
	Option of placing children in crèche area or allowing them to be present during session

Intervention content	
1. General service delivery for other cooking programmes	Women attend cooking group once a week
	First session includes a discussion on which meals/activities the entire group would like to focus on (discussion continues in successive weeks)
	Applied, practical demonstration of meal preparation

	Meals prepared from scratch each session (Arbroath and Perth), e.g. ○ Chicken curry ○ Fishcakes ○ Lasagne
	Simple to follow recipes given to women to take home
	General nutrition information provided throughout session
2. Where applicable in certain areas: mothers involved in process of design and development (with aim of service being self-governing following discontinuation of funding)	Some mothers care for young infants and babies in crèche area within cooking room whilst other mothers and older children make simple food (e.g. fruit kebab) for later 'snack time'
	Some mothers care for all children whilst other mothers prepare a nutritious meal (i.e. hands-on, practical demonstration)
	During cooking time, snacks are eaten as a group
	Once meal is ready, parents and children can take a portion and the recipe home

Evaluation measures		
Process	Uptake	Proportion of target population that participated in intervention
Impact	Pre- and Post-questionnaires to obtain quantitative information	Current cooking and eating practice Confidence in cooking Knowledge of healthy eating Perception of future healthy eating practice
	Semi-structured interviews to obtain qualitative information	Respondent's perceived ability to cook External factors which influence dietary behaviour Efficacy of programme to improve women's nutrition knowledge; practical cooking skills; current cooking practice Explore individual gains from participation in programme
	Informal evaluation also conducted by session leader	
Outcome	Need to repeat or refine programme	
	Ability to reproduce programme elsewhere	

Appendix 3: Details about maternal weight management intervention

Aim
To support obese pregnant women with weight management during pregnancy via a healthy lifestyle approach

Objectives
Increase awareness of risk factors associated with obesity during pregnancy
Improve maternal lifestyle in terms of optimal nutrition and physical activity
Enhance antenatal weight management in obese, pregnant women
Improve postnatal weight management (i.e. weight loss) in obese women

Target Group
Obese, pregnant women in Tayside

Delivery		
	Montrose	**Dundee (Ninewells Hospital)**
Enrolment	Referred by GP or midwife	
	BMI calculated by height and weight measurements taken at first antenatal appointment	
	If BMI ≥30 kg/m², women referred into 'OptiMum' service	If BMI ≥40 kg/m², women referred into 'OptiMum' service
	Those who are already in system may be enrolled (i.e. past initial booking but eligible)	
Setting	Local GP's surgeries	Outpatients' antenatal clinic within hospital (as opposed to within the community)
	Antenatal clinic within hospital	
Delivery	Seen by 14 midwives, some of which have received additional training	Seen by four midwives who have received additional training in REHIS, Behaviour Change etc.
Frequency	Seen at routine antenatal appointments	
	Booking and weeks 20, 28, 34, 38, 41	Booking *(possibly within community where referred onto service),* 20, 28, 34, 38 and 41 weeks

	Week 34 is anaesthetic appointment held at Ninewells Hospital	
Duration	Routine antenatal appointments have additional 15 minutes allocated to deliver service	
Budget	Two hours per week supported for midwives	Ten hours per week supported for midwives
	Approximately £3000	Approximately £14,000
	Potential to increase	
Miscellaneous	Possibility of implementing group sessions aimed specifically at obese, pregnant women	

Intervention Content	
Information	Women told that they are obese, warned of risks to mother and child and told of benefits of maintaining their weight through healthy lifestyle measures
	Information leaflets on healthy eating and recipe cards disseminated
Advice	A 'Key messages' card containing general advice on how to achieve and maintain a healthy lifestyle (see Appendix 11)
	The card contained seven messages with advice on healthy eating and physical activity
	Visual aids on a display table for each 'Key Message' to be utilised by midwives, e.g. ○ Amount of sugar in soft drinks message would be accompanied by physical props of sugar cubes next to various soft drinks
Discussion	'Key messages' card and display table used as tools for discussion
	Women encouraged to ask questions regarding messages
Document	Midwives to record patient's details (Name, CHI, Date of visit, weight at visit, BMI at visit) and note comments on patient's progress with regards to 'key messages'
Group activities	Option for recipients to attend group activities, such as: • Coffee mornings – an opportunity for other OptiMUM recipients to meet each other in an informal setting and learn more about the service and its aims • Healthy lunches – similar to coffee mornings but with healthier lunch and snack alternatives being provided, e.g. fruit kebabs and salads • Walks in the park – a walking group to encourage OptiMUM recipients to socialise with others and gain some exercise • OptiMUM Aquanatal – an aerobic swimming class held in Lochee in the evening specifically for obese, pregnant women

Evaluation measures		
Process	Number of women enrolled into service	
Impact	Semi-structured interviews to obtain qualitative information	Acceptability of programme Experience of programme Accessibility of information provided on weight-management Receptiveness to programme Benefits and detriments of programme
Outcome	Weight gain throughout pregnancy Postpartum weight loss	

Appendix 4: Infant feeding workshop interview schedule

Introduction and debrief

Thank you for taking part in this interview, I really appreciate it. The reason why we're asking some people to answer a few questions is that we're trying to find out about the stage mums are at with weaning their babies and get an idea of what it is like to feed a baby either milk or solids from a mums point of view. There are no right or wrong answers; it's all about your opinion.

This interview will probably take around half an hour but if we need to stop at any point then we have plenty of time. Everything you tell me will be kept confidential – your name won't appear on anything apart from this form, so no-one will ever know what you tell me. It you want to withdraw at any time then just let me know.

With your permission, I will record our interview today. All audio and written data will be kept strictly confidential and stored securely in password protected folders.

Do you have any questions before we start?

So, can I start with a few details about yourself please?

Name	
D.O.B.	
Postcode	
How many children do you have?	
How old are they?	
What is your youngest child's D.O.B.?	

1. Do you formula feed your baby?	Yes(1)	No (0)
a. *(If appropriate)* Have you ever added anything, other than milk, to your baby's bottle? b. If yes, what was this please? c. If yes, why did you add something to the bottle?	Yes(1)	No (0)

2. Weaning means different things to different people. Can I ask what does the term 'weaning' mean to you?

3. Has your baby had anything to *eat* or *drink* other than milk (breast or formula) yet?
Yes (1) No (0) *(go to question 7)*

a. Can you remember what the first drink and the first food that you gave your baby were?
   i. Where were you? *Prompt: at home, or in a café?*
   ii. What made you try this drink or food with your baby?
   iii. How old was he/she?
b. Have you tried any other drinks/foods since then with your baby?
c. How often do you give your baby something other than milk to drink/eat? *Prompt: was a 'one-off', every day, once a week, just occasionally…*
d. Was there someone or something (e.g. information leaflet) which made you introduce liquids or solids into your baby's diet? Or did it just *feel* right? Previous experience?

Liquid	**Solid**

4. Do you know what the recommended age to introduce something other than milk (breast or formula) is?	Yes (1)	No (0)	Not sure (2)	Age:

i. Why do you think there is a health recommendation of waiting until a baby is 6 months old before introducing something other than milk (breast or formula)?	ii. What do you think of this recommendation?
Knowledge	**Opinion**

5. Do you feel that the types of foods used during the weaning process are important?

6. Which foods would you say are particularly good to give a baby when they're new to solids? *Prompt: taste, texture , finger foods*

a. Why do you think this is such a good food?
b. Is there anything which you wouldn't give to a baby which is just starting on solids?

7. Before the weaning classes, were you given any advice on weaning?

Prompts:

a. What was the advice?
b. Who/what gave you the advice? (e.g. midwife, leaflet, family)
c. How was the information for you?
d. Do you feel that more help or advice should have been made available to you?

Thinking about the weaning sessions now…

8. Did you learn anything *new* from taking part in the weaning sessions? a. *If yes* – what? b. *If no* – was there anything about weaning which you already knew, but because of the sessions, you felt more confident about?

9. What are the 3 key messages/main things that you took away from the session?		

10. a. Was there anything at all confusing about the sessions?
10. b. Is there anything you would have liked some information on which was not covered in the sessions?

11. Following the sessions, are you going to, or have you already, changed anything about the way that you wean (introduce new foods or drinks to) your baby?

Thank you for taking part in this interview

Appendix 5: Family food skills programme interview schedule

Introduction and debrief

Thank you for taking part in this interview, I really appreciate it. The reason I'm doing these interviews is to try and find out about opinions on food, nutrition and cooking and also to find out how you found the food skills programme. The interview should take less than half an hour but there's plenty of time if we need to stop for any reason.

Everything you tell me today will be kept confidential; your name will never appear on anything apart from this form, so no-one will ever know what you tell me. If you want to withdraw at any time just let me know.

With your permission, I will record our interview today. All audio and written data will be kept strictly confidential and stored securely at all times.

Do you have any questions before we start?

1. **So, can I start with a few details about yourself please?**

Name	
D.O.B.	
Postcode	
Do you have any children?	
If yes, how many and how old are they?	

2. **a. On a scale of 1-5 (1 being 'I hate it' and 5 being 'I love it') how much would you say you enjoyed cooking at home?**

   1 2 3 4 5

   Use Showcard

   b. What makes you say that?

   Identify if participant has issues with confidence, knowledge, time…etc

3. **Thinking about the last three days, what have you had for your main meal each day?** *(i.e. lunch, tea or dinner)*

B. How was each meal made/prepared?

Meals	Preparation

4. **How helpful do you feel it is to have a 'hands on' demonstration in cooking, rather than just following a recipe?**

5. **When thinking about cooking healthy food…is there anything which you have issues with?** *Prompt: chopping veg, how long to cook veg, what goes well together, time to prepare a meal….*

6. **How important do you feel it is for…**

a. …you to cook and eat healthy meals?	b. …your child/ren to eat healthy meals?

7. **a. Did anyone teach you to cook?** Yes (1) No (0) *(go to Q8)*
   b. *If yes,* **Could you tell me who this was?**
   c. *If yes,* **Did you enjoy this?** *Ask participant if they found this an enjoyable experience, if it encouraged them to cook more often, if they felt it gave them confidence in the kitchen…*

8. **Nowadays, who or what has the most influence on what you have to eat for your main meal?** *Prompt: you choose what to eat, your kids, your mum, TV programmes…*

9. **Do you ever feel self-conscious about eating healthily?**

Yes (1) No (0) Don't know (2) Don't eat healthily (3)

If participant answers 'yes', explore and identify who or what makes them feel self conscious about eating healthy; if participant answers 'no', explore reasons for confidence

10. **What do think about the advice, help and information about…** *Ask participant if they feel there is enough advice, if advice is useful/relevant to them, if advice is interesting, if advice is well presented, if it is written clearly…*

a. Eating healthy	**b.** Cooking skills

11. On a scale of 1-5 (1 being 'not at all' and 5 being 'really), how helpful have you found the cooking skills sessions?

1 2 3 4 5

Use Showcard

What makes you say that?

12. Do you feel your cooking skills have improved since taking part in the sessions?

13. Is there anything you think you will change at home (in terms of cooking practice) after taking part in the cooking sessions?

14. Do you feel your nutrition/diet knowledge has improved since taking part in the sessions? *Prompt: Can you tell me 3 main things you learned?*

15. What has been the best thing you've learned to do?

16. Was there anything that you wanted to learn about cooking which wasn't covered in the classes?

17. Did you find anything confusing or frustrating about the classes?

18. Do you think this cooking class would be useful to other people? Do you think it would be good it was run again?

Thank you for taking the time to speak with me today

Appendix 6: Maternal weight management intervention interview schedule

Introduction and debriefing

Thank you for taking part in this interview, I really appreciate it. I'm here today to ask how you found the 'OptiMum' service. Your comments will not be reported back to your midwife or health visitor so please feel free to tell me anything which you think might be useful.

The interview should take less than half an hour but there's plenty of time if we need to stop for any reason.

Everything you tell me today will be kept confidential; your name will never appear on anything apart from this form, so no-one will ever know what you tell me. If you want to withdraw at any time just let me know.

With your permission, I will record our interview today. All audio and written data will be kept strictly confidential and stored securely at all times.

Do you have any questions before we start?

Details about respondent (fill in from consent form)	
Name	
D.O.B.	
Postcode	
Number of children, plus age of each child	

Q1 – Influences on weight management
A. Before you were pregnant, can you tell me what the main influence on your weight was? **B. Thinking about during your pregnancy now, can you please tell what the main influence on your weight was?**

Q2 – Perception of weight
A. How did you feel about your weight *before* you were given advice by your midwife, as part of the 'OptiMum' service? *How comfortable were you with your weight, shape, size before your first antenatal appointment?* **B. How do you feel about your weight (body, shape, and size) now, following the service?** *Did your opinion of yourself change at all?*

Q3 – Opinion of service
Can I ask you for your thoughts on the 'OptiMum' service please? **A. How did you find the whole process of being involved in the service?** **B. Do you feel that the amount of time allocated for receiving and discussing information about diet and physical activity was appropriate for you?** **C. Do you believe that it has been useful for you to be part of this service?** *(If yes – In what ways…? If no – what makes you say that…?)* **D. Did the service affect the way you felt about your pregnancy at all?**

Q4 – Opinion of advice

A. Can you tell me what was easy or challenging about following the diet and exercise advice given?

B. Do you remember any of the key messages? *What do you remember?*

C. Looking at the 'key messages' card now; what are your thoughts on it? Show card
Presentation of card? Likes or dislikes? How did you find the messages themselves?

D. Do you still follow any of the advice, following pregnancy? *Do you mind telling what advice you follow and why?*

Q5 – Weight targets

A. During the 'OptiMum' service, were 'weight targets' discussed at all? **B. Did you want a weight target to work with?** **C.** *(If applicable)* **How did it feel to be given a weight target?**
Q6 – Opinion of timing of advice
What is your opinion on the *timing* of being advised about diet and physical activity? *i.e. Did you feel that it was suitable for you to be given this information during your pregnancy?*

Q7 – Perception of maternal weight
A. Do you feel that a woman's weight *pre*-pregnancy (i.e. at conception) could have an effect on her baby at all? **B. Do you believe that the amount of weight a woman gains *during* her pregnancy could influence the health of her baby at all?** *If yes: In what way…? If no: what makes you think that…?*

Q8 – Perception of negative consequences
Did being involved in the 'OptiMum' service have any negative consequences for you at all?

Q9 – Future 'OptiMum' services
A. Could the 'OptiMum' service offer anything more (or anything differently) to mothers who need help with diet and exercise during pregnancy? *Any exercise or nutrition classes that you feel would be useful? Why?* **B. Would you be happy to receive the same support if you were pregnant again?** **C. Final thoughts…For other mothers who will be using this service, is there anything else at all which you would like to tell me about how you found the 'OptiMum' which may be helpful?**

Thank you for taking the time to answer these questions about the 'OptiMum' service

Appendix 7: Ethical approval letter

ethics advice Ref: 10/GA/051

Ackland Caroline (NHS Tayside)

Sent: 09 April 2010 10:43

To: **Barnett Carol (NHS Tayside)**

Dear Carol,

Re: Development of an obesity service for women from pregnancy onwards

You have sought advice from the Research Ethics Office on the above project. The Research Ethics Co-ordinators and I have considered this and can advise that this does not require ethical review under the terms of the Governance Arrangement for Research Ethics Committees (GAfREC) in the UK. The advice is based on the following documentation provided to us:

Document	Version	Date
Interview schedule Draft III	Not specified	Not specified
Supporting emails	Not specified	09/04/2010

- You are undertaking a service evaluation
- You are collecting anonymous data
- You are undertaking a simple interview

Please note that this advice is issued on behalf of the Research Ethics Service Office and does not constitute an opinion of a Research Ethics Committee (REC). It is intended to satisfy journal editors and conference organisers, who may require evidence of consideration of the need for ethical review prior to publication or presentation of your results.

You should keep a copy of this letter within your

project file. Yours sincerely,

Caroline

Caroline Ackland
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Appendix 8: 'Key Messages' card

Front of card

Back of card

Appendix 9: CEL 36 Improvement Programme Driver Diagram